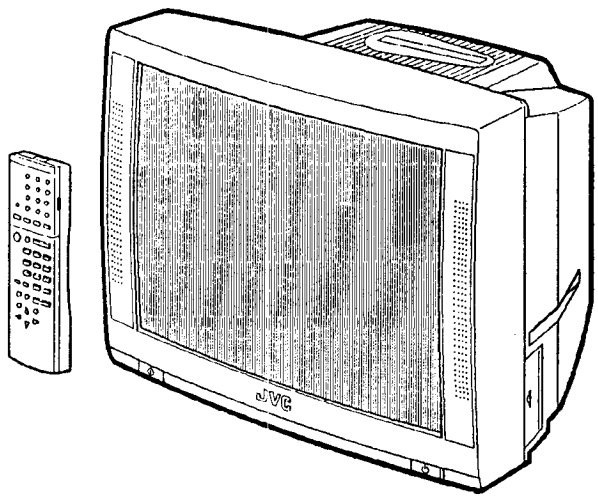
JVC

SERVICE MANUAL

COLOUR TV

AV-25S1EK
AV-28S1EK

BASIC CHASSIS
MX II



【 AV-28S1EK 】

For Service Manuals Contact
MAURITRON TECHNICAL SERVICES
8 Cherry Tree Rd, Chinnor
Oxon OX9 4QY
Tel:- 01844-351694 Fax:- 01844-352554
Email:- enquiries@mauritron.co.uk

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No.50789
May 1993

Specifications

TV RF system	: CCIR I
Colour system	: PAL, NTSC (only in EXT mode)
Receiving channels	: E21–E69
Power input	: AC 220–240 V, 50 Hz
Power consumption	: Average 115 W, Maximum 170 W, Standby 6.5 W (AV-25GS1EK) Average 125 W, Maximum 175 W, Standby 6.5 W (AV-28GS1EK) Average 115 W, Maximum 160 W, Standby 6.5 W (AV-25S1EK/AV-28S1EK)
Picture tube	: 59 cm (AV-25GS1EK, AV-25S1EK) 66 cm (AV-28GS1EK, AV-28S1EK)
Audio output	: Music Power : 6 W + 6 W + 11 W (AV-25GS1EK, AV-28GS1EK) 10 W + 10 W (AV-25S1EK, AV-28S1EK)
Speaker	: 10 cm round x 2,13 cm round x 1 (AV-25GS1EK, AV-28GS1EK) 10 cm round x 2 (AV-25S1EK, AV-28S1EK)
External input/output	: • EXT-1 : 21-pin Euroconnector (SCART) • EXT-2 : 21-pin Euroconnector (SCART) • EXT-3 : S-video input 4 pin DIN Video input RCA Audio inputs 2 x RCA • External speaker terminals • Headphone plug: stereo mini plug
Dimentions (W x H x D)	: 599 mm x 505 mm x 446 mm (AV-25GS1EK,AV-25S1EK) 660 mm x 551 mm x 480 mm (AV-28GS1EK,AV-28S1EK)
Weight	: 30.9 kg (AV-25GS1EK) 29.3 kg (AV-25S1EK) 37.3 kg (AV-28GS1EK) 35.3 kg (AV-28S1EK)
Accessoires	: • REMOTE CONTROL: RM-C871 x 1 (AV-25GS1EK, AV-28GS1EK) RM-C873 x 1 (AV-25S1EK, AV-28S1EK) • AA (R6)-size Dry Cell Battery x 2

Design and specifications subject to change without notice.

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JVC
VICTOR COMPANY OF JAPAN, LIMITED

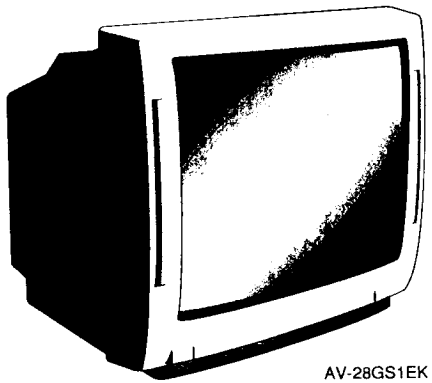
AV-25GS1EK / AV-28GS1EK
AV-25S1EK / AV-28S1EK

JVC

COLOUR TELEVISION

USER GUIDE

Thank you for purchasing this JVC colour television.
To ensure your complete understanding, please read this manual thoroughly before operation.



AV-28GS1EK

PREPARATION (p. 7)
1. Connecting an aerial and power cord
2. Inserting batteries into your Remote Control
3. Turning your TV ON/OFF
4. Setting programmed channels (PR channels)
5. Selecting the MENU language

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OPERATING INSTRUCTIONS

AV-25S1EK
AV-28S1EK

Safety precautions

WARNING:

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION:

TO ENSURE PERSONAL SAFETY, OBSERVE THE FOLLOWING RULES REGARDING THE USE OF THIS UNIT.

- Operate only from the power source specified (AC 220 — 240V, 50 Hz) on the unit.
- Avoid damaging the AC plug and power cord.
- Avoid improper installation and never position the unit where good ventilation is unattainable.
- Do not allow objects or liquid into the cabinet openings.
- In the event of a fault, unplug the unit and call a service technician. Do not attempt to repair it yourself or remove the rear cover.

* When you do not use this TV set for a long period of time, be sure to disconnect the power plug from the AC outlet.

WARNING:

DO NOT cut off the mains plug from this equipment. If the plug fitted is not suitable for the power points in your home or the cable is too short to reach a power point, then obtain an appropriate safety approved extension lead or adaptor or consult your dealer.

If nonetheless the mains plug is cut off, remove the fuse and dispose of the plug immediately, to avoid a possible shock hazard by inadvertent connection to the mains supply.

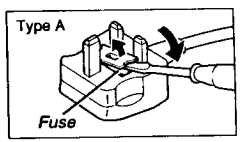
If this product is not provided with a mains plug, or one has to be fitted, then follow the instruction given below:

IMPORTANT.
DO NOT make any connection to the larger terminal which is marked with the letter E or by the safety earth symbol ⏚ or coloured green or green-and-yellow.

The wires in the mains lead on this product are coloured in accordance with the following code:

Blue:	Neutral
Brown:	Live

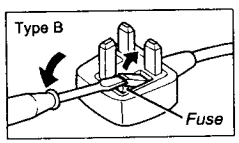
As these colours may not correspond with the coloured marking identifying the terminals in your plug proceed as follows:



The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

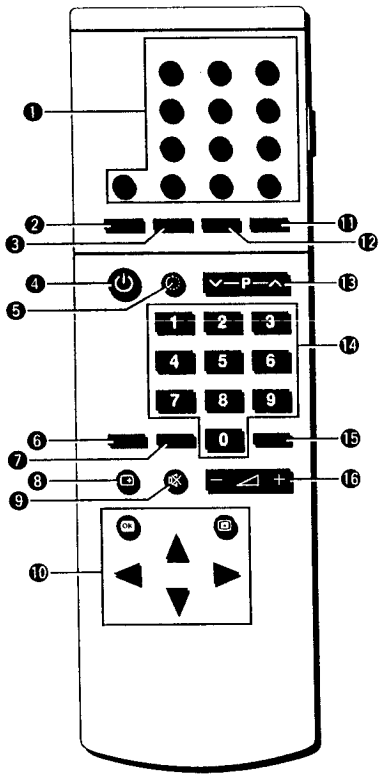
When replacing the fuse only a correctly rated approved type should be used and be sure to re-fit the fuse cover.

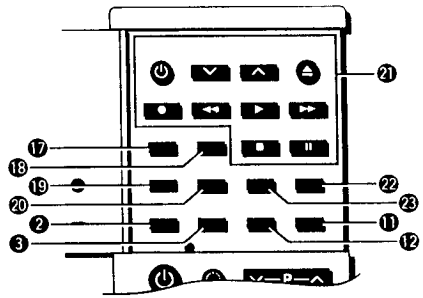


IF IN DOUBT — CONSULT A COMPETENT ELECTRICIAN.

How To Replace The Fuse
open the fuse compartment with the blade screwdriver, and replace the fuse.
(The power plug is either type A or type B.)

Locations of Remote control buttons





❶ TELETEXT buttons	p. 33
❷ TV button	p. 12
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❹ STANDBY button	p. 8
❺ SLEEP TIMER button	p. 23
❻ CHANNEL RETURN button	p. 22
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⓱ HYPER BASS button (only AV-25GS1EK/AV-28GS1EK)	p. 16
⓲ ASP (Acoustic Surround Processor) button	p. 15
⓳ 16:9 (wide screen) button	p. 19
⓴ CINEMA button	p. 17
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* Illustrations are of the remote control RM-C871 supplied with AV-25GS1EK/AV-28GS1EK
* Remote control RM-C873 supplied with AV-25S1EK/AV-28S1EK does not have HYPER BASS printed on the unit.
* For the locations of TV buttons and parts, please refer to page 6.

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* AV-25S1EK / AV-28S1EK do not have the Hyper-bass function.

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Some Do's And Don'ts On The Safe Use Of Equipment

This equipment has been designed and manufactured to meet international safety standards but, like any electrical apparatus, care must be taken if you are to obtain the best results and safety is to be assured.

DO read the operating instructions before you attempt to use the equipment.
DO ensure that all electrical connections (including the mains plug, extension leads and interconnections between pieces of equipment) are properly made and in accordance with the manufacturer's instructions.
DO consult your dealer if you are ever in doubt about the installation or operation or safety of your equipment.
DO be careful with glass panels or doors on equipment.

DON'T continue to operate the equipment if you are in any doubt about it working normally, or if it is damaged in any way — switch off — withdraw the mains plug and consult your dealer.
DON'T remove any fixed cover as this may expose dangerous voltages.
DON'T leave equipment switched on when it is unattended unless it is specifically stated that it is designed for unattended operation or has a standby mode. Switch off using the switch on the equipment and make sure that your family know how to do this. Special arrangements may need to be made for infirm or handicapped people.
DON'T use equipment such as personal stereos or radios that may distract you when driving. It is illegal to watch television while driving.
DON'T listen to headphones at high volume, as such use can permanently damage your hearing.
DON'T obstruct the ventilation of the equipment, for example with curtains or soft furnishings. Overheating will cause damage and shorten the life of the equipment.
DON'T use makeshift stands and NEVER fix legs with wood screws — to ensure complete safety always fit the manufacturer's approved stand or legs with the fixings provided according to the instructions.
DON'T allow electrical equipment to be exposed to rain or moisture.

ABOVE ALL
— NEVER let anyone especially children push anything into holes, slots or any other opening in the case — this could result in a fatal electrical shock.
— NEVER guess or take chances with electrical equipment of any kind. It is better to be safe than sorry.

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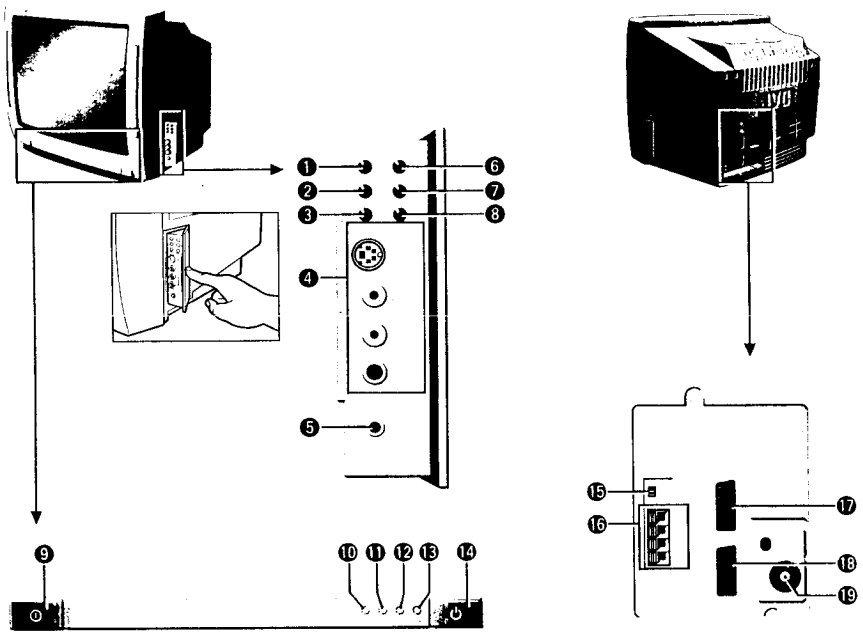
Locations of TV buttons and parts

FRONT/SIDE PANEL

REAR PANEL



SIDE PANEL	
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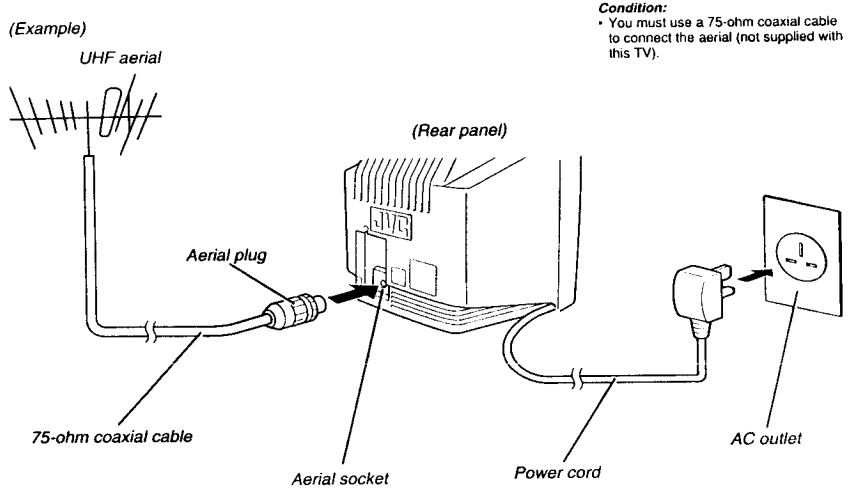
⓳ Aerial socket	p. 7

* TV unit illustrations are of the AV-28GS1EK.
* For the locations of remote control buttons, please refer to page 3.

1. Connecting an aerial and power cord

Condition:
- You must use a 75-ohm coaxial cable to connect the aerial (not supplied with this TV).

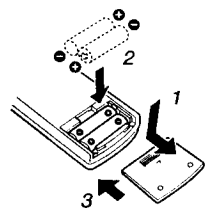


2. Inserting batteries into your remote control

1 **Press in and slide off the cover.**

2 **Insert 2 batteries into the battery compartment.**

3 **Replace the cover.**

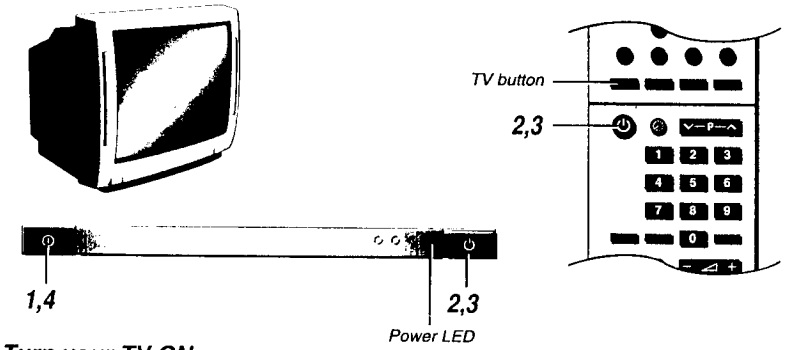


Condition:
- Use two AA/R6 dry cell batteries.

Caution:
- Do NOT use rechargeable batteries.
- Follow the cautions printed on the batteries.

Notes:
- Battery life is approximately 6 months to 1 year depending on the frequency of use.
- If the remote control operates erratically, replace the batteries.
- Correctly insert batteries observing + and – polarities.

3. Turning your TV ON/OFF



To Turn your TV ON

1 Press the Main power button.

The Power LED lights up red.

2 Press the STANDBY button.

The Power LED changes to green.
A picture will appear if you have set programmed (PR) . channels and your TV is in TV mode.

To turn your TV OFF

3 Press the STANDBY button.

The Power LED changes to red.
- Your TV enters Stand-by mode. To view a programme, simply press the STANDBY button again.

4 Press the Main power button to turn the Main power OFF.

The Power LED goes OFF.

Note:
- If your TV is in TV mode and you turn OFF/ON the Main power, your TV will enter TV mode automatically.

Note:
- You can also use the numeric buttons or TV button to turn ON your TV.

To enter TV mode:
Press the TV button.

To set programmed channels:
Refer to page 9.

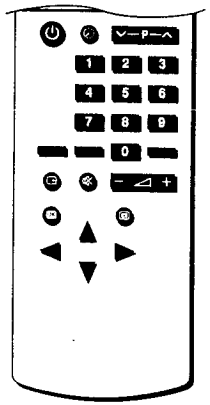
To view a TV programme:
Refer to page 12.

Note:
- We recommend that you turn the Main power OFF if you do not plan to use your TV for a long time and/or you wish to save energy.

4. Setting programmed channels (PR Channels)

You can programme channels (PR Channels) you frequently view automatically or manually, and then access the channles by entering a 1 or 2-digit number.

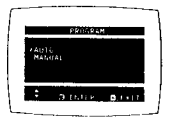
- When you programme channels automatically, broadcast stations are programmed from the lowest channel to the highest in numerical order. Automatic programming is recommended.
- When you programme channels manually, you can programme a broadcast station to your favourite programme channel number.



To programme channels automatically

1 Turn the TV on, then press OK, ▲, ▲

The PROGRAM (programme) menu appears.



2 Press OK

The channel programming starts automatically.

When programming is complete, the display returns to the PROGRAM (programme) menu.

● Press ⏎ repeatedly to exit the menu.

Note:
- You can set up to 60 programmed channels.

Using the menu

The MENU display appears in 3 segments.

❶ Menu title
❷ Operating area
❸ Help area: You can use buttons displayed here.

- When you select an item in any menu, that item is highlighted in yellow and/or indicated by ☞.
- After setting is complete, press ⏎ (EXIT) to go back to each previous page of the menu.
- To exit the menu by one action, press the DISPLAY button.
  However, if you are in the PROGRAM (programme) menu, you must press ⏎ to exit the menu.
- To select the menu language, refer to page 11.

Note:
- You cannot use the menu in Teletext mode.

Notes:
- A comma between buttons means to press each button consecutively, not all at the same time.
- When a programmed (PR) channel has an unclear picture, unclear sound, or you cannot delete it, call up the PR SUMMARY menu and set Channel Skip to ON. Then, when you are selecting channels using the PR CHANNEL UP/DOWN button, you can skip channels you do not want to view. (Refer to pages 26 and 27.)

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AV-25S1EK
AV-28S1EK

To programme channels manually

1 **Turn the TV on, then press OK, ▲, ▲**

The PROGRAM (programme)menu appears.

2 **Press ▼, OK**

The manual programming menu appears.

3 **Press ▼ to select the PR area, then enter the PR number you want to set.**

Example: To select PR01, press the numeric buttons 0,1.

4 **Press ▲ to select the CH/CC area, then enter the broadcast channel number you want to programme.**

Example: To select CH27, press the PR/CH button to select CH, and then enter 27.

To select a channel automatically

1. Press ▶

Scanning starts.

Scanning stops automatically when a broadcast channel is found.

5 **Press OK**

The display blinks once and the current channel settings are stored as a PR channel.

The next PR number appears in the PR area.

- Repeat steps 3-5 to set all remaining broadcast channels as PR numbers.

Settings are complete.

- Press ⊡ repeatedly to exit the menu.

Note:

- A comma between buttons means to press each button consecutively, not all at the same time.

CH:
Broadcast channel

If the picture is not clear:
Press ▼ to select FINE.
Then press ◀ or ▶ to fine-tune the channel.

Notes:

- To stop scanning, press ◀ or ▶
- For the most appropriate broadcast channel in your area, please call each station.

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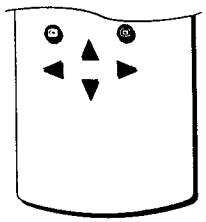
5. Selecting the MENU language

You can select the MENU to appear in one of 4 languages.



1 **Press OK, ▲, ◀**

The LANGUAGE menu appears.

2 **Press ▲ or ▼ to select a language.**

English

French

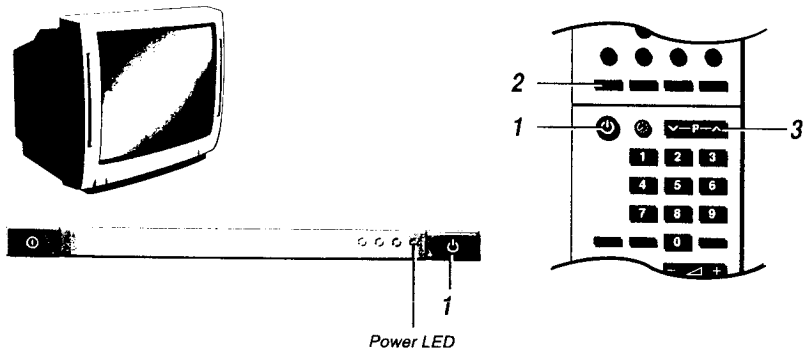
German

Italian

Setting is complete.

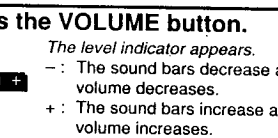
- Press the DISPLAY button to exit the menu.

Viewing a Television Programme



1 Press the STANDBY button.

The Power LED changes to green and a picture appears on your TV screen.



Notes:
- If the Main power is OFF, the STANDBY button will not function.
- You can also use the numeric buttons or TV button to turn ON your TV.
- If your TV screen turns red, the channel is locked. Please refer to "To view a locked channel" on page 25.

2 Press the TV button.

TV

Your TV enters TV mode and the on-screen display appears for three seconds.

Notes:
- If your TV is already in TV mode, step 2 is not necessary.
- To view from a connected device, refer to "Viewing from a VCR, etc." on page 30.

3 Select a channel.

Scan selection

- Only programmed channels can be selected.

1. Press the PR CHANNEL UP/DOWN button.
∧ : to scan forwards to a channel number.
∨ : to scan backwards to a channel number.

Note:
- You can also press the PR CHANNEL UP/DOWN button on your TV set.

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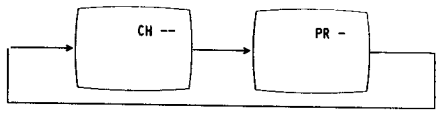
Direct selection

Selecting a broadcast channel number.

PR/CH

1. Press the PR/CH button repeatedly to display modes and select CH--.



CH:
Broadcast channel

PR:
Programmed channel

2. Enter the channel number.
Example: To enter 25, call up the CH-- display and press the numeric buttons 2,5.

Selecting a programmed channel.

PR/CH

1. Press the PR/CH button to select PR-.

2. Enter a 1-digit channel number.
Example: To enter PR6, press the numeric button 6.

To enter a 2-digit PR number:
1. **Press the - - button.**
2. **Enter a 2-digit channel number.**

Note:
- The colour system is automatically selected. If the picture is not clear, you may need to change the colour system manually. Please refer to page 22.

4 Press the VOLUME button.

The level indicator appears.

− : The sound bars decrease as volume decreases.
+ : The sound bars increase as volume increases.

5 Press the STANDBY button to turn your TV OFF.

The Power LED changes to red.

- Your TV enters Stand-by mode. To view a programme, simply press the STANDBY button again.

Notes:
- To turn the Main power OFF, press the Main power button.
- We recommend that you turn the Main power OFF if you do not plan to use your TV for a long time and/or you wish to save energy. When the Main power is turned OFF, the clock will stop.

Listening to stereo or bilingual broadcasts

If available

—MULTI SOUND

You can enjoy an acoustic atmosphere for music or sports programmes.
You can also listen to programmes broadcast in the original language.

Notes:
- MULTI SOUND mode has no effect for normal broadcast programmes.
- When you are listening to a programme in stereo or bilingual mode, the stereo/bilingual LED lights up green.
- When displaying the current channel number, the current mode appears for approx. 3 seconds.

1. Press OK, ▶, ▼

The MULTI SOUND menu appears.
The mode "ON AIR" (being broadcast) is indicated by an arrow and the sound system mode (NICAM).

2. Press ▼ or ▲ to select a mode.

●Setting is complete. Press the DISPLAY button to exit the menu.

CD :
Stereo sound

I :
Bilingual I (sub I)

II :
Bilingual II (sub II)

O :
Normal sound

Muting the sound

—MUTE

You can mute the volume completely (to 0) or to a preset level. It is convenient when you answer the phone or when someone suddenly visits.

1. Press the MUTE button repeatedly.

→ Preset level → Sound 0 → Original level →

Note:
- If the sound level is already lower than the preset level, the MUTE button has no effect, however if you press the MUTE button once more, the volume level will go to 0

To preset the mute level

1. Press OK, ▶, ▶

The MUTE menu appears.

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2. Press ◀ or ▶ to set the mute level.

●Setting is complete. Press the DISPLAY button to exit the menu.

Note:
- You can set the mute level from 0 to 15.

Selecting a tone

—TONE

You can select from the following 4 tones:

- SOFT
- CLEAR
- HEAVY
- VOCAL

1. Press OK, ▶, ◀

The TONE menu appears.

2. Press ▲, ▼, ◀, or ▶ to select a tone.

●Setting is complete. Press the DISPLAY button to exit the menu.

Note:
- The USER SETTING always corresponds to the most recent tone selected (including bass and treble settings).

Listening to LIVE sound

—ASP (Acoustic Surround Processor)

You can experience the acoustic atmosphere of a theatre or sports arena.

Condition:
- To listen to a LIVE sound effect, you must first select "STEREO SOUND" from the MULTI SOUND menu. Refer to page 14.

1. Press the ASP button.

When in stereo mode:

→ SURROUND OFF → LIVE EFFEX → HALL EFFEX →

When in monaural mode:

→ SURROUND OFF → LIVE EFFEX → STEREO EFFEX →

●The selected mode is confirmed and disappears after approx. 3 seconds.

SURROUND OFF:
Normal.

LIVE EFFEX:
Live performance effect. No effect in monaural mode.

HALL EFFEX:
Concert hall effect.

STEREO EFFEX:
Simulated stereo effect in monaural mode.

Note:
- When in EXT mode and listening to monaural sound, the display changes as in stereo mode, however there is no surround effect.

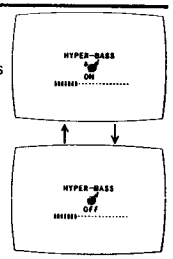
Listening to Hyper-bass sound

—HYPER-BASS

You can emphasize low tones by outputting more bass from the Hyper-bass speakers located at the top of your TV set. AV-25S1EK/AV-28S1EK do not have the Hyper-bass function.

1. Press the HYPER BASS button to alternate the ON/OFF status.

- The selected mode is confirmed and disappears after approx. 3 seconds.



ON:
When listening to a music programme etc.

OFF:
When not required.

Note:
- You cannot hear Hyper-bass sound through headphones.

To set and turn Hyper-bass ON/OFF

1. Press OK, ▶, ▲

The HYPER-BASS menu appears.

2. Press ◀ or ▶ to set the Hyper-bass level.

3. Press OK to alternate the ON/OFF status.

- Settings are complete. Press the DISPLAY button to exit the menu.

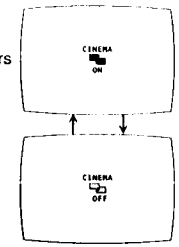
Creating a cinema effect

—CINEMA mode

You can enjoy the atmosphere of a cinema in your own home. Normally, the base colour for TV screens is blue, however, when you select CINEMA mode the base colour changes to red creating cinema-like colours.

1. Press the CINEMA button to alternate the ON/OFF status.

- The selected mode is confirmed and disappears after approx. 3 seconds.



Notes:
- When you press the CINEMA button, the picture/sound levels are set to the appropriate level, Hyper-bass turns ON and the ASP enters LIVE EFFEX mode automatically. AV-25S1EK /AV-28S1EK do not have the Hyper-bass function.
- Make the room as dark as possible to create the best cinema effect.
- It is recommended to use a video disc or video.
- When in CINEMA mode you can change picture/sound levels, Hyper-bass, and ASP settings. However, factory settings will be restored if you press the CINEMA button again or turn the TV OFF/ON. AV-25S1EK /AV-28S1EK do not have the Hyper-bass function.

ON:
CINEMA mode

OFF:
Normal screen

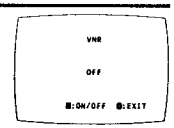
Reducing picture noise

—VNR (Video Noise Reduction)

You can improve the clarity of a picture by reducing picture noise, making the image softer.

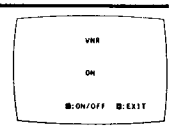
1. Press OK, ◀, ▼

The VNR menu appears.



2. Press OK to alternate the ON/OFF status.

- Setting is complete. Press the DISPLAY button to exit the menu.



OFF:
When viewing a normal picture.

ON:
When viewing a noisy picture.

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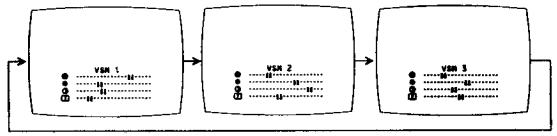
Selecting picture adjustments

—VSM (Video Status Memory)

You can select from 3 preset picture adjustments, instantly giving you a perfect picture without having to adjust each item.

Condition:
- To select a VSM, first store picture adjustments in a VSM.

1. Press the VSM button repeatedly.



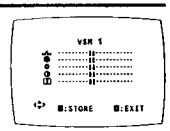
● The selected VSM is confirmed and disappears after approx. 3 seconds.

To store picture adjustments in a VSM

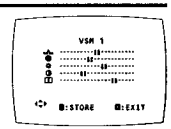
1. Press OK, ◄

The PICTURE menu appears.

2. Press ▲, ◄ or ► to select a VSM.



3. Press ▲ or ▼ to select an item, then press ◄ or ► to set the level.



4. Press OK

The display blinks once and your picture adjustments are stored.

● Settings are complete. Press the DISPLAY button to exit the menu.

: Tint*

: Colour

: Brightness

: Contrast

: Sharpness

* You can only set TINT when in EXT mode NTSC 3.58 or NTSC 4.43.

• To set an item's level, refer to page 20.

Note:
- To store picture adjustments for another VSM, repeat steps 1 – 4.

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Setting the VSM standard

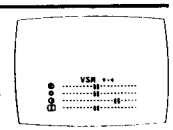
—VSM STANDARD

You can restore picture adjustments to the factory settings (standard) if your personal VSM settings are unsuitable.

1. Press the VSM STANDARD button.

The standard picture settings are restored.

● The selected VSM is confirmed and disappears after approx. 3 seconds.



Wide screen viewing

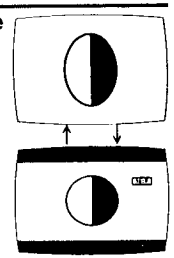
—16:9 (Wide Screen)

You can enjoy a wider viewing screen by changing the aspect ratio from standard (4:3) to view panoramic pictures (16:9).

Condition:
- To view wide screen broadcasts, you require a D/D2-MAC decoder (not supplied with this TV). For further details, refer to the manual for the D/D2-MAC decoder.

Notes:
- If you turn the Main power OFF/ON again or you change channels, the standard aspect ratio of 4:3 will be restored.
- When a device having an aspect ratio switching function is connected to EXT-1 or 2, the aspect ratio is automatically switched.

1. Press the 16:9 button to alternate 16:9 and 4:3 modes.

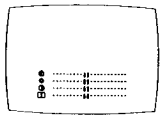


Adjusting the picture/sound temporarily

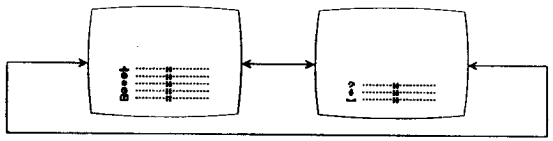
You can temporarily adjust the picture/sound by simply calling up the PICTURE/SOUND menu.

1. Press ▼

The PICTURE/SOUND menu appears.



2. Press ▼ or ▲ repeatedly to select an item, then press ◄ or ► to set the level.



◄	Item	►
Reddish	: Tint*	Greenish
Low	: Colour	High
Dark	: Brightness	Bright
Low	: Contrast	High
Soft	: Sharpness	Sharp
Low	: Bass	High
Low	: Treble	High
Left	: Balance	Right

* You can only set TINT when in EXT mode NTSC 3.58 or NTSC 4.43.

● The level is confirmed and the level indicator disappears after approx. 3 seconds.

Setting the Clock —SET CLOCK

Your TV has a built-in clock which keeps and displays the current time on the screen.

Note:
- When the main power supply is interrupted the clock stops and CLOCK STOPPED appears. You will need to reset the clock.

1. Press OK, ▼, ▲

The SET CLOCK menu appears.

2. Enter the current time.

Example: To set 5:30am, press 0, 5, 3, 0.
To set 9:30pm, press 2, 1, 3, 0.

Notes:
- The clock employs the 24-hour format.
- If you enter the wrong number, press ◄ or ► to move the cursor, and re-enter the correct number.

3. Press OK

The display blinks once and the clock starts.

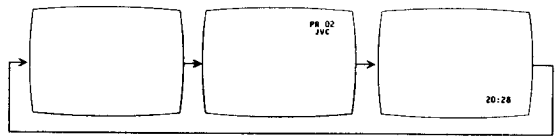
● Setting is complete. Press the DISPLAY button to exit the menu.

Notes:
- If you have entered an invalid time, such as 25:61, the clock will not accept the number.
- To change the time, press OK and repeat steps 2 – 3.

Displaying the current TV status —DISPLAY MESSAGES

You can display the channel number and ID, or the current time.

1. Press the DISPLAY button repeatedly.



● The setting is complete. The display will not change until you select another.

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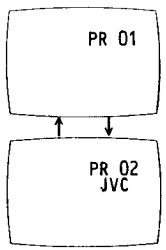
AV-25S1EK
AV-28S1EK

Returning to the previous channel
—CHANNEL RETURN

You can return to the previous channel quickly and simply. First turn to the news then to the football. You can then switch from the football back to the news quickly and simply.

1. Press the CHANNEL RETURN button.

Channels alternate between the previous channel and original channel.



Selecting the colour system manually
—COLOUR SYSTEM

The colour system is automatically selected. If the picture is not clear, you can change the colour system manually.

1. Press the P/N button repeatedly.

When in TV mode:
↱ **AUTO → PAL** ↲

When in EXT mode:
↱ **AUTO → PAL → N3.58 → N4.43** ↲

- The selected colour system is confirmed and disappears after approx. 3 seconds.

AUTO:
Automatic colour system selection

PAL:
PAL broadcast

N (NTSC) 3.58/N (NTSC) 4.43:
Depending on the type of VCR you use.

Note:
- When you change channels or EXT mode, AUTO is restored.

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Setting Auto Shutoff
—AUTO SHUTOFF

You can set your TV to automatically turn OFF after no broadcast signals are received for 10 consecutive minutes. Now you can doze off and, after the station stops broadcasting, your TV will automatically turn OFF.

Note:
- You can only use this function in TV mode.

1. Press OK, ▼, ▼

The AUTO SHUTOFF menu appears.

2. Press OK to alternate the ON/OFF status.

- Setting is complete. Press the DISPLAY button to exit the menu.

OFF:
When you are viewing a channel receiving an extremely weak broadcast signal, this function automatically turns OFF the TV. In this case, turn OFF Auto Shutoff.

ON:
When you want your TV to turn OFF after no signals have been received for 10 minutes.

Setting the Sleep Timer
—SLEEP TIMER

You can set your TV to automatically turn OFF within a specified period of time. Now you can monitor children's viewing hours, or doze off without worrying about leaving the TV ON.

Notes:
- 1 minute before the OFF time arrives, GOOD NIGHT! appears.
- The SLEEP TIMER only turns OFF the Power (Standby mode), not the Main power.

1. Press the SLEEP TIMER button repeatedly.

The OFF time increases in intervals of 10 minutes.

↱ **00 → 10 → 20 → 30 ... 100 → 110 → 120** ↲

- The set OFF time is confirmed and disappears after approx. 3 seconds.
- The Timer LED lights up orange.

To display the remaining time of the set SLEEP TIMER:
Press the SLEEP TIMER button once.

To cancel the SLEEP TIMER:
Press the SLEEP TIMER button to return the OFF time to 00.
- The Timer LED goes OFF.

Setting channel LOCK

—LOCKS

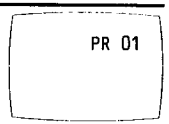
You can lock channels so they can only be viewed by entering your secret ID number. This is convenient if you want to prevent children from viewing certain channels.

Condition:
- When you are programming channels, you will be prompted to enter your ID number to access locked channels.

Note:
- You can lock up to four channels using one ID number.

To set channel LOCK

1. Tune-in to the channel you want to lock.



2. Press OK, ▼, ▶

A padlock icon appears.

3. Press 0.

The LOCKS menu appears.

Note:
- If you tuned-in a PR channel, its broadcast channel number appears.

4. Press ▲ or ▼ to select a LOCK position.

5. Press OK

The tuned-in channel number is entered, overwriting any previous setting.

Notes:
- If you have already set an ID number settings are complete. Press the DISPLAY button to exit the MENU.
- To set or change the ID number, go to step 6.

6. Press ▼ to select SET ID NO.

7. Press OK

The SET ID NO. display appears.

8. Enter your 4-digit ID number.
- Settings are complete. Press the DISPLAY button to exit the menu.

Notes:
- If you enter the wrong number, complete entering 4 digits, then re-enter a new ID number.
- To lock another channel, repeat steps 1 – 5.

To cancel LOCK

1. Select the channel in step 4 on the previous page, then press OK.

To view a locked channel

1. Select a locked channel.

You are prompted to enter your ID number.

Note:
- As locked channels are automatically skipped when scanning with the PR CHANNEL UP/DOWN buttons, you can only select a locked channel using the numeric buttons.

2. Enter your ID number.
- When you enter the correct ID number, the locked channel is tuned-in.
- When you enter the wrong ID number, ???? appears and access is denied.

If you forget your ID number:
Refer to "To set channel lock", steps 2 – 8 on page 24.

Viewing and setting your programmed channel list

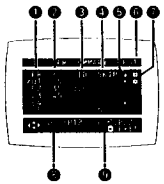
—PR SUMMARY

You can view a list of the status of your programmed channels (PR Channel). You can also set station ID, channel skip, and the station volume level for each PR Channel.

To browse the PR SUMMARY

1. Press OK, ▲, ▼

The PR SUMMARY menu appears.



❶ Programmed channel number
❷ Broadcast channel number corresponding to the programmed channel number
❸ Station ID
❹ Channel skip status
❺ Station volume level status
❻ PR SUMMARY page number
❼ Channel lock status
❽ Previous page number
❾ Next page number

Note:
- When browsing the PR summary, you cannot set channel LOCKS. To set channel locks, refer to page 24.

- To change settings, press ▲ or ▼ to select a PR number , then select one of the following procedures.
- To exit the menu, press the DISPLAY button.

To set station ID's

You can set and display a station ID for PR channels using up to 4 characters.

1. Press ◄ or ► to select the ID column.

2. Press OK

The STATION ID menu appears.

Example:
To set JVC as the station ID:
1. Select the ID column.
2. Press OK
3. Select J.
4. Press OK
5. Select V.
6. Press OK
7. Select C.
8. Press OK
9. Select ■ (blank space).
10. Press ⏎ to return to the PR SUMMARY menu.

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3. Press ▲, ▼, ◄ or ► to select a character, then press OK

Your selection is confirmed.
- Repeat step 3 to complete the station ID.
- ● Settings are complete. Press ⏎ to exit and return to the PR SUMMARY menu.

Note:
- To set another station ID, scroll up/down to another PR number and repeat steps 2 – 3.

To turn Channel Skip ON/OFF

You can skip PR channels when using the PR CHANNEL UP/DOWN button.

1. Press ◄ or ► to select the SKIP column.

2. Press OK to alternate the SKIP ON/OFF status.

- ● Setting is complete.

No indication:
Channel will not be skipped.

S:
Channel will be skipped.

Note:
- To set SKIP for another channel, scroll up/down to another PR number and repeat step 2.

To set the volume level for a channel

You can set a standard volume level, from a choice of 3 set levels, for each channel.

1. Press ► to select the station volume level column.

2. Press OK to select a volume level.

┌→ – → 0 → + ┐

- ● Setting is complete.

–:
to reduce volume
(for high volume channels)

0:
Normal volume

+:
to increase volume
(for low volume channels)

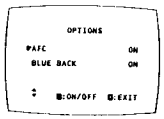
Note:
- To set volume level for another channel, scroll up/down to another PR number and repeat step 2

Fine-tuning channels automatically
—AFC (Auto Fine-Frequency Control)

You can improve your TV's reception automatically. However, to fine-tune PR channels you may want to turn AFC OFF.

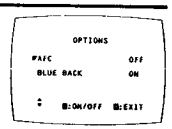
1. Press OK, ▲, ▶

The OPTIONS menu appears.



2. Press OK to alternate the ON/OFF status.

- Setting is complete. Press the DISPLAY button to exit the menu.



OFF:
When you are fine-tuning PR channels.

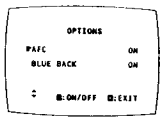
ON:
To fine-tune a channel automatically. (Fine-tuning PR channels has no effect)

Turning non-broadcast channels blue
—BLUE BACK

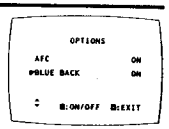
You can mute the sound and turn picture noise, that appears for channels not receiving broadcast signals, into a solid blue screen.

1. Press OK, ▲, ▶

The OPTIONS menu appears.

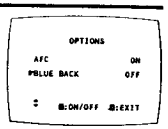


2. Press ▼ to select BLUE BACK.



3. Press OK to alternate the ON/OFF status.

- Setting is complete. Press the DISPLAY button to exit the menu.



OFF:
When you are viewing a channel receiving weak signals, the screen may turn blue. In this case, turn BLUE BACK OFF.

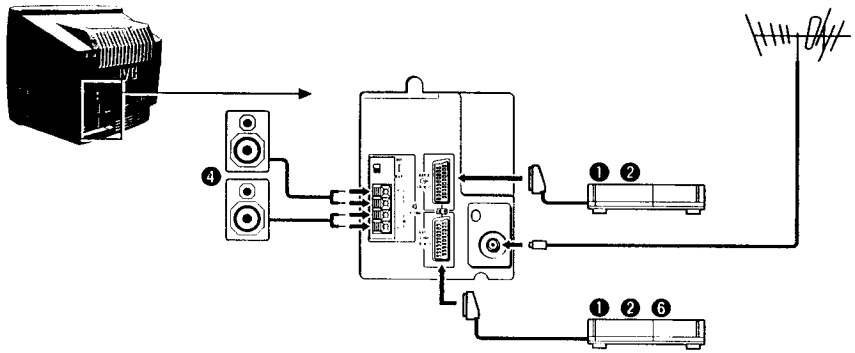
ON:
The screen for all channels not receiving broadcast signals will turn blue.

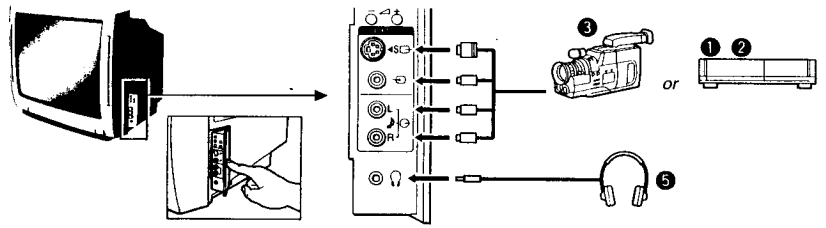
Connecting external devices
—CONNECTION DIAGRAM

Conditions:
- Before connecting external devices, be sure to disconnect the TV from the AC outlet.
- When you want to view from a connected device such as a VCR, you must first switch to the appropriate input mode. Refer to "Viewing from a VCR, etc." on page 30.
- To select the output speaker refer to "Selecting the output speakers" on page 32.

Notes:
- When you connect a device to your TV, refer to that device's manual for further details.
- Picture quality may deteriorate due to noise from the interference of connected devices. If picture noise occurs, turn OFF devices that you are not using or move the devices further apart.
- Use only speakers with an impedance from 8 to 16 ohm.
- Use headphones with a stereo mini plug (ø3.5 mm).
- Connecting cable is not supplied.

❶ **VCR**
❷ **S-VHS VCR**
❸ **Camcorder**
❹ **Stereo speakers**
❺ **Headphones**
❻ **Decoder (CH PLUS,etc.)**





Note:
- When using headphones, the speakers will not output sound.

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AV-25S1EK
AV-28S1EK

	EXT-1	EXT-2	EXT-3 (side)
VIDEO IN	√ *1	√ *1	√ *1
VIDEO OUT	√ *2	√ *3	—
S-VIDEO IN	√ *1	√ *1	√ *1
S-VIDEO OUT	—	—	—
RGB IN	√	—	—
AUDIO-L IN	√	√	√
AUDIO-R IN	√	√	√
AUDIO-L OUT	√ *2	√ *3	—
AUDIO-R OUT	√ *2	√ *3	—
Others	Automatic detection and switching of input mode. Automatic detection and switching of picture aspect ratio.	Automatic detection and switching of picture aspect ratio.	

*1 Select VIDEO or S-VIDEO mode by the S-IN button.
*2 Only the TV broadcast is output.
*3 TV broadcasts or inputs from EXT-1 or 3 can be output. However, when you select EXT-2, no signals are output.

Viewing from a VCR, etc.

— EXT SELECTION

To view from a connected device you must select the appropriate input mode.

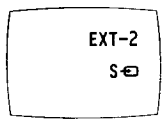
1. Press the EXT button repeatedly.

→ EXT-1 → EXT-2 → EXT-3 →

● The selected EXT mode is confirmed and disappears after approx. 3 seconds.

Notes:
- When you start playback from a VCR connected to EXT-1, the current mode is automatically released and switched to EXT-1. When the VCR is stopped, the last EXT mode is restored.
- When you are viewing in TV mode and automatically switch to the device connected to EXT-1, the channel number of TV and "EXT-1" appear on the display.

To select S-IN mode:
Press the S-IN button.



To return to TV mode:
Press the TV button.

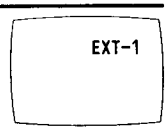
Viewing and setting the EXT mode list

—EXT SETTING

You can view a list of the status of EXT modes. You can also set EXT ID, and the EXT volume level for each EXT mode.

To browse the EXT SETTING

1. Press the EXT button to engage EXT mode.



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2. Press OK, ▲, ▼

The EXT SETTING menu appears.

- To change settings, press ▲ or ▼ to select an EXT mode, then select one of the following procedures.
- To exit the menu, press the DISPLAY button.

To set EXT ID's

You can set and display an EXT ID for EXT modes using up to 4 characters.

1. Press ◄ or ► to select the ID column.

Example:
To set "VHS" as the EXT ID:
1. Select the ID column.
2. Press OK
3. Select V.
4. Press OK
5. Select H.
6. Press OK
7. Select S.
8. Press OK
9. Select ■ (blank space).
10. Press ⏎ to return to the EXT SETTING menu.

2. Press OK

The EXT ID menu appears.

3. Press ▲, ▼, ◄ or ► to select a character, then press OK

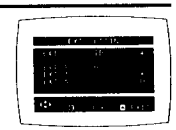
Your selection is confirmed.
- Repeat step 3 to complete the EXT ID.
- ● Settings are complete. Press ⏎ to exit and return to the EXT SETTING menu.

Note:
- To set another EXT ID, scroll up/down to another EXT mode and repeat steps 2 - 3.

To set the volume level for an EXT mode

You can set a standard volume level, from a choice of 3 set levels, for each EXT mode.

1. Press ► to select the EXT volume level column.



2. Press OK to select a volume level.

→ − → 0 → + →

● Setting is complete.

−:
to reduce volume
(for high volume EXT mode)

0:
normal volume

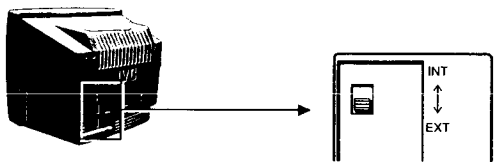
+:
to increase volume
(for low volume EXT mode)

Note:
- To set volume level for another EXT mode, scroll up/down to another EXT number and repeat step 2

Selecting the output speakers
—OUTPUT SPEAKERS

You can output sound from the built-in or external speakers.

1. Set the Speaker select switch, located at the rear of your TV set.



INT:
To output sound from the built-in speakers.

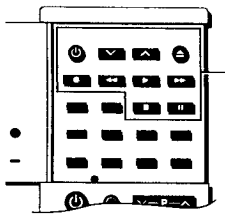
EXT:
To output sound from the external speakers.

Note:
- If you select EXT speaker, Hyper-bass sound is still output from the Hyper-bass speaker. Refer to page 16. AV-25S1EK /AV-28S1EK do not have the Hyper-bass function.

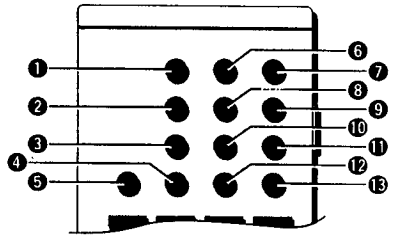
Controlling your VCR via remote control
—VCR CONTROL

Buttons in the VCR control section on the remote control have the same function as those on the JVC VCR units.

Notes:
- Thoroughly read the instruction manual for your VCR.
- Some VCRs or some functions of VCRs might not be operable with this remote control.



Viewing a teletext programme



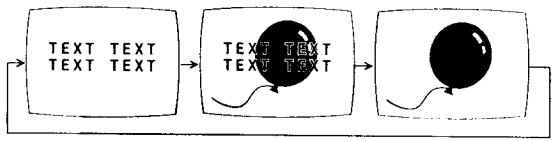
Notes:
- If you have problem concerning a teletext programme, consult your local dealer or television company.
- While watching a teletext programme, you can adjust the brightness and contrast.

❶ DISPLAY CANCEL button
❷ STORE button
❸ HOLD button
❹ COLOUR(GREEN) button
❺ COLOUR(RED) button
❻ SUB PAGE button
❼ MODE button
❽ INDEX button
❾ SIZE button
❿ REVEAL button
⓫ TV/TXT/MIX button
⓬ COLOUR(YELLOW) button
⓭ COLOUR(BLUE) button

Basic teletext operation

1. Tune to the programme that is broadcasting teletext information.

2. Press the TV/TXT/MIX button repeatedly to engage the TEXT mode.



Notes:
- Your TV can receive two type of teletext programmes FLOF, TOP. Both type of programmes are automatically recognized. If the programme is neither FLOF nor TOP, your TV will regard it as a standard teletext programme (WST).
- If "HALT!" is displayed when you press the TV/TXT/MIX button, you can not operate the teletext function. Please wait until the indication disappears.

3. Select the page number you want to view.

Scan selection
Press the PR CHANNEL UP/DOWN button.

Direct selection
Enter the 3-digit page number.

COLOUR button selection
Press the COLOUR button corresponding to the page number displayed.

∧ :
To scan forwards to a teletext page.

∨ :
To scan backwards to a teletext page

● To return to TV mode, press the TV button.

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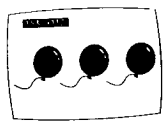
To make teletext information disappear temporarily — DISPLAY CANCEL button

While scanning for a teletext page that takes a long time to be reached, you can view a normal TV programme.

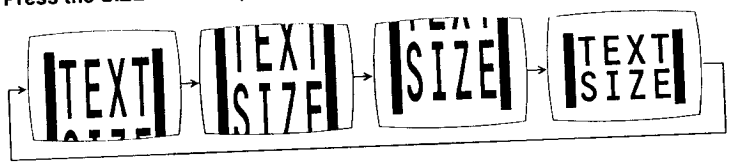
1. **Select the page you want to view.**
   Scanning starts.
2. **Press the DISPLAY CANCEL button.**
   Your TV enters TV mode.
   The current and selected page numbers appear in the upper left of the screen.
3. **When the page you selected appears, press the TV/TXT/MIX button.**



To enlarge teletext display — SIZE button

You can vertically double the size of the upper, middle or lower section of the teletext display.

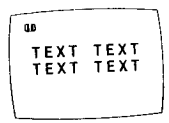
1. **Press the SIZE button repeatedly.**



To hold a page — HOLD button

You can hold a page temporarily, even as the teletext transmission continues, to make a note of information.

1. **Press the HOLD button.**
   The current page remains on screen.
2. **Press the HOLD button to release the hold mode.**



To return to the index page — INDEX button

You can easily return to the index page.

1. **Press the INDEX button.**

FLOF:
Returns to the programme designated INDEX page.

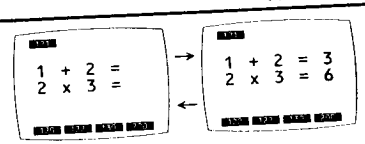
TOP:
Returns to the TOP INDEX page.

Others:
No change.

To reveal hidden information — REVEAL button

Certain teletext pages contain information, such as answers to questions, which you can reveal.

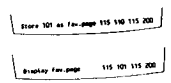
1. **Press the REVEAL button to alternate reveal and hide.**



To store pages to a COLOUR button — STORE button

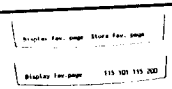
You can store a frequently viewed page in any of the 4 COLOUR buttons for quick recall.

1. **Call up the teletext page you want to store.**
2. **Press the STORE button.**
3. **Press the COLOUR button twice.**



To call up a stored page — MODE button

1. **Press the MODE button.**
2. **Press the GREEN button.**
3. **Press the COLOUR button corresponding to the page you want to view.**



To view a sub-page — SUB PAGE button

Some Teletext pages have sub-pages, which scroll automatically. Any sub-pages you wish to view can be held or scrolled one at a time.

1. **Call up a teletext page which has sub-pages.**
2. **Press the SUB PAGE button to hold a sub-page.**
   Sub-page numbers appear at the bottom of the display.
3. **Press the RED or GREEN button to scroll sub-pages.**
   RED (+): to scroll up one page
   GREEN (–): to scroll down one page
4. **Press the SUB PAGE button to continue automatic scrolling.**

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Troubleshooting

- If the power cord plug is disconnected from the AC outlet, or the TV aerial is causing problems, you may think there is a problem with the TV itself; be sure to check the following items before calling for service.

Important:
- Review all the instructions written in this booklet.

■ GENERAL

Problem	Cause	Action
No power supply	Is the power cord plug disconnected?	Insert the plug in an AC outlet (p. 7).
	Is the Main Power switched off?	Press the Main Power button (p. 8).
No picture or sound	Is the aerial disconnected?	Check the aerial connections (p. 7).
	Is the input mode (TV, EXT-1, EXT-2 and EXT-3) set to an incorrect position?	Press the TV or EXT button to engage the correct mode (p. 12, 30).
Inoperable remote control	Are the batteries exhausted?	Replace the batteries (p. 7).
	Are the batteries' +/– poles placed correctly?	Re-install the batteries correctly (p. 7).
	Is the remote control too far from the TV?	Operate the remote control within approx. 7 metres of the TV.
The power shuts OFF automatically	Is the SLEEP TIMER set?	Press the STANDBY button to turn the TV ON again.
	Is AUTO SHUTOFF set?	Press the STANDBY button to turn the TV ON again.

■ SOUND

Problem	Causes	Action
No sound	Are headphones plugged in?	Disconnect the headphones (p. 29).
	Is the speaker switch set to "EXT"?	Set the speaker switch to "INT" (p. 32).
No sound with stereo broadcast	Is the sound mode selection set to Normal mode?	Select "STEREO" from the MULTI SOUND menu (p. 14).
No sound for Sub-I or Sub-II for programmes broadcast with dual sound	Is the sound mode selection set to the another mode?	Select the appropriate mode from the MULTI SOUND menu (p. 14).

■ PICTURE

Problem	Cause	Action
The screen turns red	Have you tuned-in to a locked channel?	Enter your ID number (p.25) or select an unlocked channel.
Poor colours	Are the COLOUR and BRIGHTNESS controls adjusted incorrectly?	Adjust the COLOUR and BRIGHTNESS controls (p. 18, 20).
	Is the wrong colour system selected?	Press the P/N button to select AUTO (p. 22).
	Is cinema mode selected?	Press the CINEMA button to select normal mode (p. 17).
Lines or streaks in picture (interference)	Could there be interference with a personal computer, TV VCR, audio component, jamming by a radio station, etc.?	Move the components apart until the interference is eliminated. Move the aerial to a different position or direction.
Spotted picture (crosstalk)	Could there be interference from a hair dryer, electric cleaner, neon sign, hightension wire, automobile, motorcycle, etc.?	Move the aerial away from the source of interference. Replace the aerial cable with a coaxial cable, which is less prone to interference.
Double pictures (ghost)	Could the direct signals from a TV broadcast station be affected by reflected signals from mountains or buildings, etc.?	Move the aerial to a different position, height or direction. Replace with an aerial having good directivity.
Snowy picture (image noise)	Is the external aerial cut or disconnected ?	Check the aerial connection. Direct the aerial correctly (p. 7).
	Is the aerial turned in the wrong direction due to strong wind, etc. ?	Replace or repair the aerial.
	Is the aerial damaged?	Replace or repair the aerial.
The screen turns blue	Is a non-broadcasting channel selected?	Select a broadcast channel.

■ TELETEXT

Problem	Cause	Action
No receivable Teletext programme	Is the TV tuned to a Teletext channel?	Tune to a channel that broadcasts teletext information (p. 33).
	Is the teletext broadcast on video tape?	You cannot watch teletext broadcasts recorded on a video tape.

The following are normal occurrences and are not the result of TV malfunctions:

- When you touch the CRT surface, you might feel a slight charge of static electricity. This is because the CRT contains static electricity; it does not affect the human body.
- Your TV may emit a crackling sound due to a sudden change in temperature. There is no problem unless the picture or sound is abnormal.
- When a still bright image (of a white dress, for example) appears on the screen, the image may be coloured. This problem occurs in all CRTs, and as the bright image disappears, such colouration also disappears.

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SPECIFICATIONS

Item	Content
Dimensions	25" : 59.9cm (W) × 50.5cm (H) × 44.6cm (D) 28" : 66.0cm (W) × 55.1cm (H) × 48.0cm (D)
Weight	25" : 29.3kg / 28" : 35.3kg
TV RF System	CCIR (I)
Colour System	PAL / NTSC (only in EXT mode)
Teletext system	FLOF (United Kingdom system) , TOP (West Germany system)
Stereo system	NICAM
Receiving Channels and Frequency	
UHF	E21 - E69 . . . . . 470MHz - 862MHz
Intermediate Frequency	
VIF Carrier	39.5MHz
SIF Carrier	33.5MHz
Colour Sub Carrier Frequency	
PAL	4.43MHz
NTSC	3.58MHz / 4.43MHz
Aerial Input Terminal	75Ω Unbalanced, Coaxial
Power Input	220 - 240V AC , 50Hz
Power Consumption	25" : 160W (max.), 115W (avg.) , 6.5W (standby) 28" : 160W (max.), 115W (avg.) , 6.5W (standby)
Picture Tube	25"(Visible size : 59cm) Diagonally measured 28"(Visible size : 66cm) Diagonally measured 25" / 28" : FST (Flat SquareTube)
Viewable Picture Size	25" : 48cm(W) × 36cm (H) / 28" : 54cm (W) × 41cm (H)
High Voltage	25" : 28kV ± 1kV (at zero beam current) 28" : 28kV ± 1kV (at zero beam current)
Focus Voltage	25" : Approx. 8.7 kV / 28" : Approx. 8.7kV
Speaker	10cm Round Type, 8Ω ×2
Audio Output	
Music Power	10W + 10W
Audio Power	5W + 5W
Remote Control Unit	RM-C873

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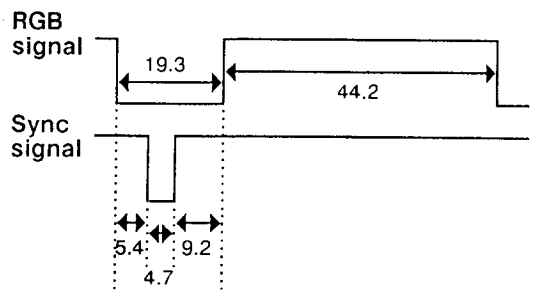
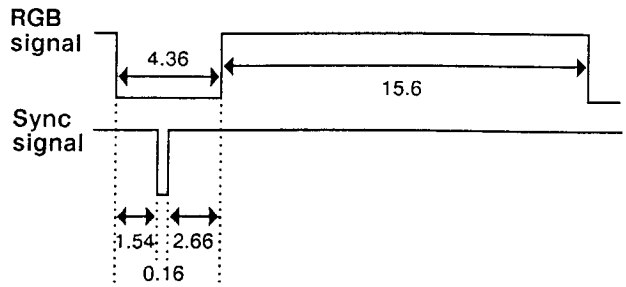
■Recommended input signal of 21-Pin Euro connector (SCART socket)

H. SYNC period [µs]



V. SYNC period [ms]

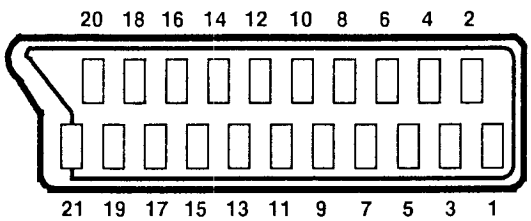


Design & specification subject to change without notice.

■21-pin Euro connector (SCART socket) : EXT-1 / EXT-2

Pin No.	Signal Designation	Matching Value	EXT-1	EXT-2
1	AUDIO R output	500mVrms(Standard), Low impedance	○(TV)	○(LINE)
2	AUDIO R input	500mVrms(Standard), High impedance	○	○
3	AUDIO L output	500mVrms(Standard), Low impedance	○(TV)	○(LINE)
4	AUDIO GND		○	○
5	GND (B)		○	○
6	AUDIO L input	500mVrms(Standard), High impedance	○	○
7	B input	700mVp-p, 75Ω	○	NC
8	SLOW SW input	Low : 0 - 3V, Middle : 4 - 7V, High : 8 - 12V, High impedance	○	○
9	GND (G)		○	○
10	–		NC	NC
11	G input	700mVp-p, 75Ω	○	NC
12	–		NC	NC
13	GND (R)		○	
14	GND (Ys)		○	NC
15	R / C input	R : 700mVp-p, 75Ω C : Same as C component of 1Vp-p CVBS, 75Ω	○(R/C)	○(only C)
16	Ys input	Low : 0 - 0.4V, High : 1 - 3V, 75Ω	○	NC
17	GND (VIDEO output)		○	○
18	GND (VIDEO input)		○	○
19	VIDEO output	1Vp-p, 75Ω	○(TV)	○(LINE)
20	VIDEO / Y input	V : 1Vp-p, 75Ω Y : 1Vp-p Positive, 75Ω (Negative sync. provided)	○	○
21	COMMON GND		○	○

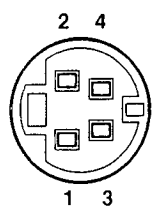
[Pin assignment]



■Input connector : EXT-3

Connector	Pin No.	Signal	Matching Value
S(Y/C)-Connector (4-pin)	1	GND (Y)	
	2	GND (C)	
	3	Y input	1Vp-p, 75Ω (Negative Sync. Provided)
	4	C input	Same as C component of 1Vp-p CVBS, 75Ω
RCA-jack (V)	–	VIDEO input	1Vp-p, 75Ω
RCA-jack (L)	–	AUDIO L input	500mVrms (Standard), High Impedance
RCA-jack (R)	–	AUDIO R input	500mVrms (Standard), High Impedance

[Pin assignment]



SAFETY PRECAUTIONS

1. The design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the product have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replace - ment components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by (⚠) on the Parts List in the Service Manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the Parts List of Service Manual may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.

WARNING

1. This equipment has been designed and manufactured to meet international safety standards.
2. It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
3. Repairs must be made in accordance with the relevant safety standards.
4. It is essential that safety critical components are replaced by approved parts.
5. If mains voltage selector is provided, check setting for local voltage.

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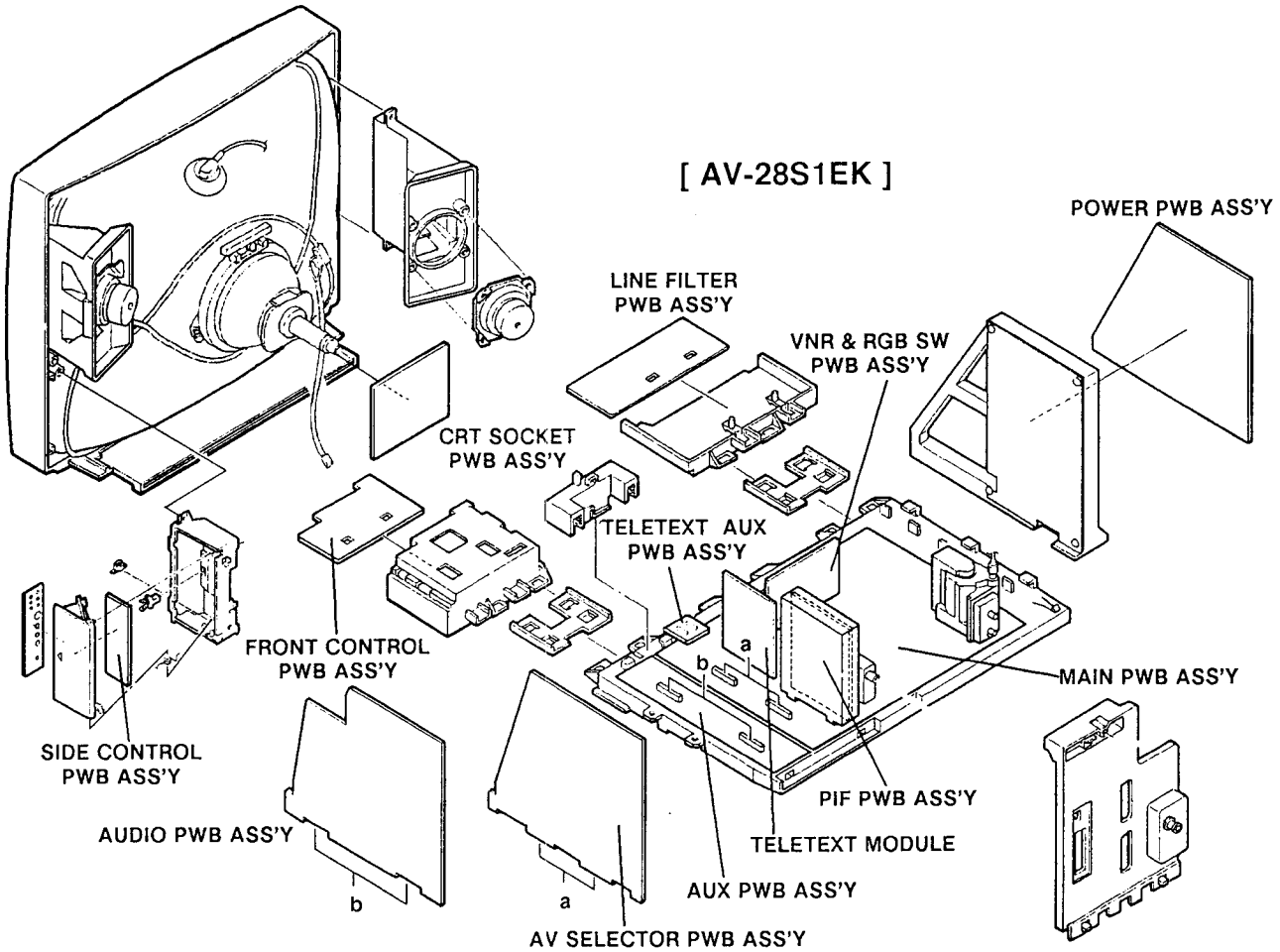
MAIN PARTS LOCATIONS



SPECIFIC SERVICE INSTRUCTIONS

■ PRECAUTIONS FOR WORK

1. When servicing the monitor, place it on a stable surface so it will not fall.
2. The AC plug or power cord can get caught under the TV during installation and so get damaged. Take sufficient care to avoid damage to the AC plug or power cord.
3. This monitor is designed for 220 to 240V AC, 50 Hz. Never connect it to other power supplies.
4. If any connectors or clamps are removed when the chassis is removed for servicing, reinstall them after servicing.
5. When the chassis is removed for servicing, connectors or ground wires may come off. Before turning the power on, check the they are connected correctly and that they do not touch the chassis.
6. Check the wires are clamped or fixed properly and do not contact any moving parts, heating parts, sharp edges, or power supplies (high voltage).
7. Since the following parts become hot, they must not contact electrolytic capacitors or wires.
   → IC1441, Q1462, Q1541, IC1706, Q2001, D2031, IC0703, and heat sinks
8. Since the AUDIO PWB ASS'Y and AV SELECTOR PWB ASS'Y are installed upright, they may contact each other if the bracket is removed. avoid this when servicing.
9. When the POWER PWD ASS'Y shield is removed, the ground wire may come into contact with another part.
10. Before installing a fuse, check the fuse rating and the safety mark shown on the panel. When the fuse is installed, confirm that the fuse holder is fixed properly, and check the rating indication on the PWB ASS'Y.
11. Check as follows after servicing :
    - Has any solder or have any removed screws been left in the set ?
    - Have all connectors, covers, shield cases, and screws been put back and secured or tightened ?
    - Are there any defects around repaired parts ?
    - Have dirt and dust been removed? A build-up of dust can cause a malfunction due to moisture.

■ DISASSEMBLY PROCEDURES

Note : Before starting work, disconnect the power plug from the outlet.

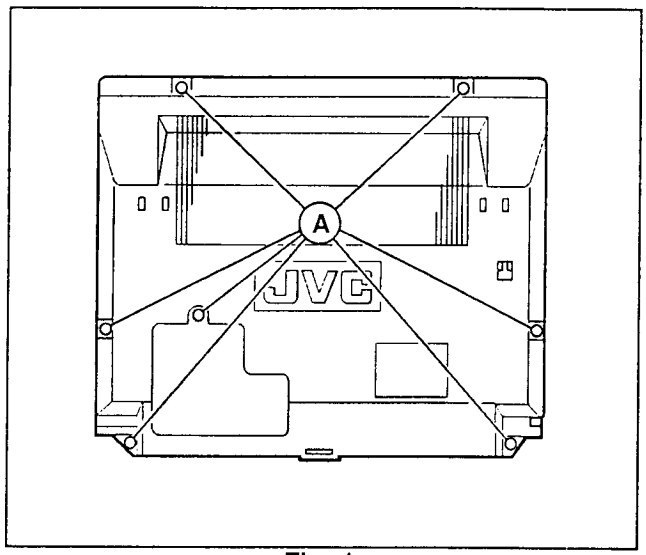


Fig. 1

Removing the REAR COVER

1. Remove the seven screws Ⓐ.
2. Remove the REAR COVER.

Note :

- Once the REAR COVER has been removed, the set can easily tip over.

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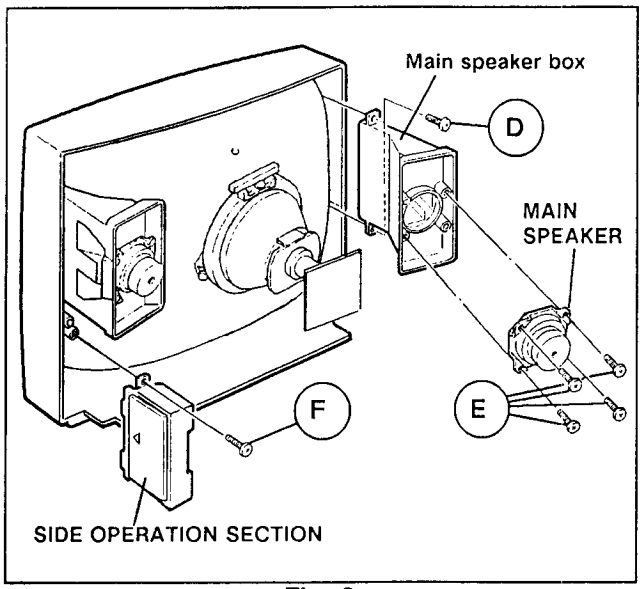

Fig. 3

Removing the MAIN SPEAKER

- Remove the REAR COVER. [See "Removing the REAR COVER".]

1. Remove the four screws Ⓔ.
2. If the main speaker box is removed, remove the two screws Ⓓ.
3. Pull out the main speaker box toward you.

Note : The speaker cord connector (speaker side) may not be disconnected easily. If so, disconnect it carefully with pliers.

Removing the SIDE OPERATION SECTION

- Remove the REAR COVER. [See "Removing the REAR COVER".]

1. Remove the one screw Ⓕ.

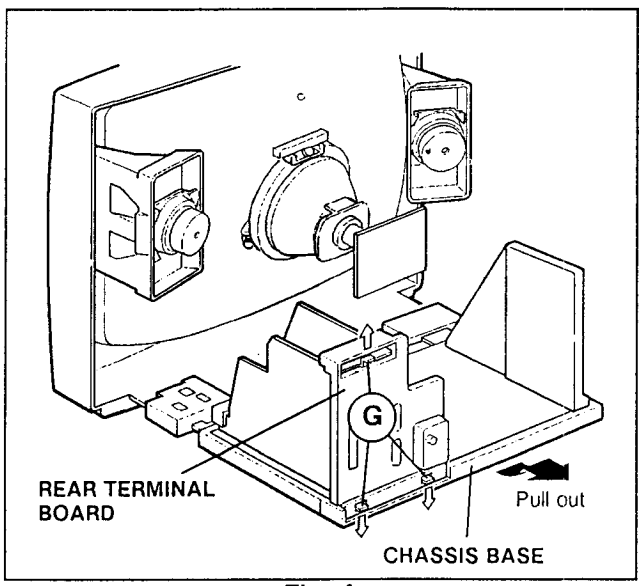

Fig. 4

Removing the CHASSIS BASE

- Remove the REAR COVER. [See "Removing the REAR COVER".]

1. Lift the rear of the chassis base, and pull it out.
   When pulling it out, remove the strained wires. Before turning the power on, reinstall the removed wires.

Removing the REAR TERMINAL BOARD

- Remove the REAR COVER. [See "REMOVING the REAR COVER".]

1. Push hook Ⓖ in the direction of the arrow, and release the REAR TERMINAL BOARD from the hook.
2. Remove the cable between the aerial connecter on the REAR TERMINAL BOARD and the tuner, and remove the REAR TERMINAL BOARD.

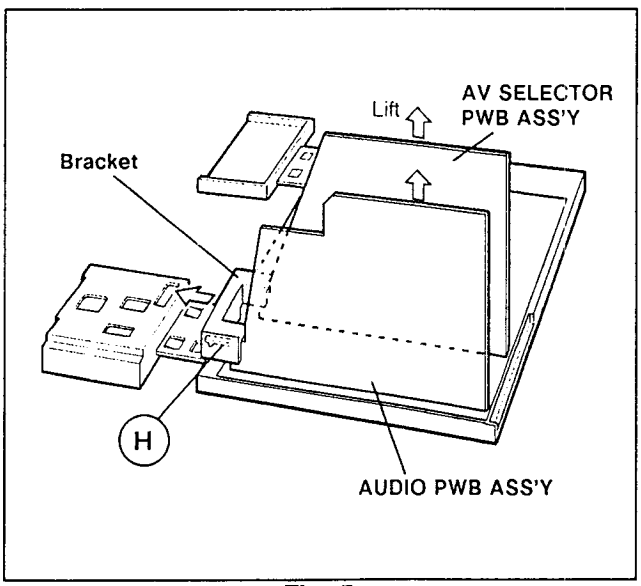

Fig. 5

Removing the AUDIO PWB ASS'Y & AV SELECTOR PWB ASS'Y

- Remove the REAR COVER. [See "Removing the REAR COVER".]
- Remove the REAR TERMINAL BOARD. [See "Removing the REAR TERMINAL BOARD".]
- Pull out the CHASSIS BASE. [See "Removing the CHASSIS BASE".]

1. Lift hook Ⓗ and remove the bracket in the direction of the arrow.
2. Lift the AUDIO PWB ASS'Y or AV SELECTOR PWB ASS'Y.

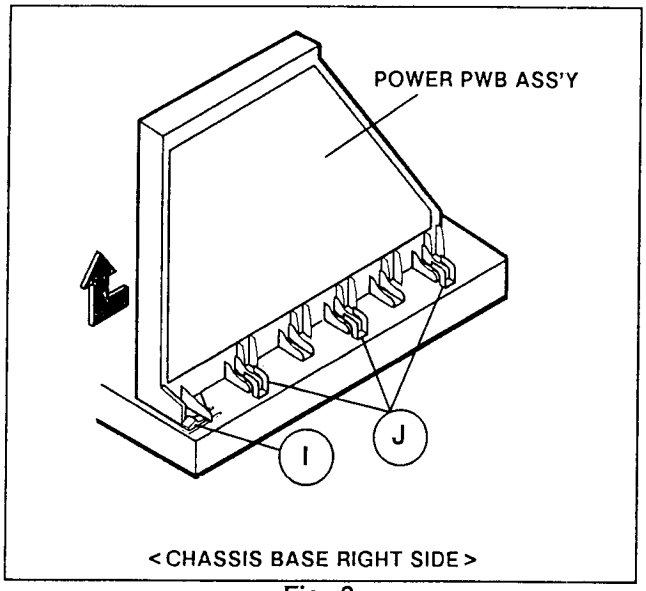

Fig. 6

Removing the POWER PWB ASS'Y

- Removing the REAR COVER. [See "Removing the REAR COVER".]
- Pull out the CHASSIS BASE. [See "Removing the CHASSIS BASE".]

1. Push hook Ⓘ down, slide the POWER PWB ASS'Y toward you, and release hook Ⓙ. Lift off the POWER PWB ASS'Y.

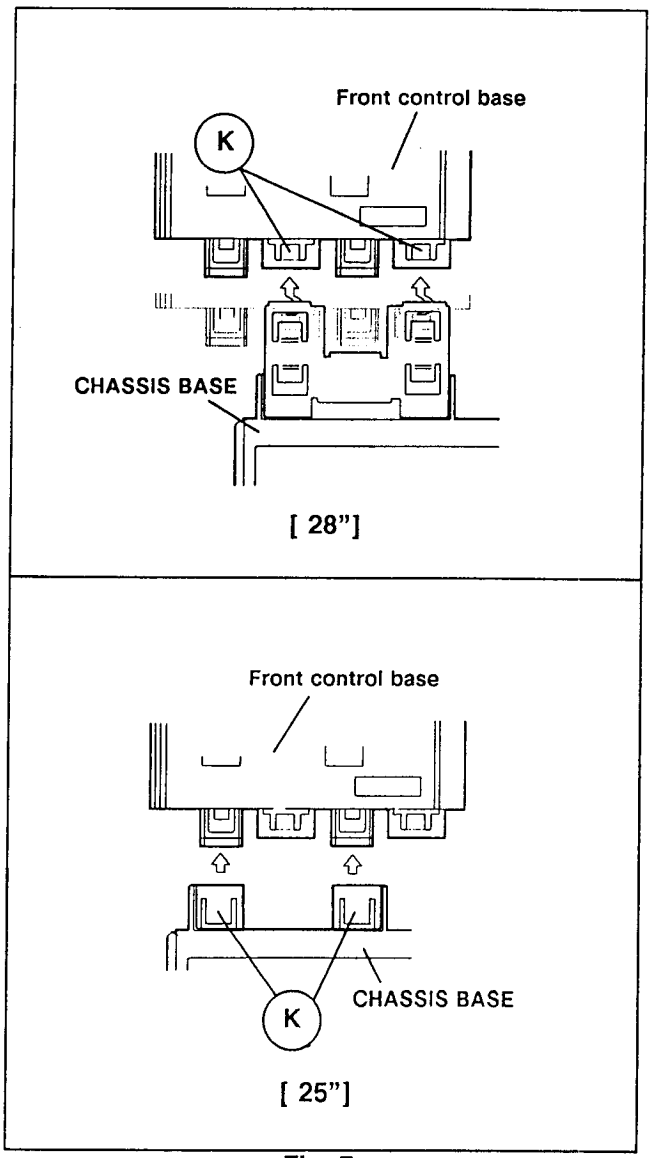

Fig. 7

Removing the FRONT CONTROL PWB ASS'Y

- Remove the REAR COVER. [See "Removing the REAR COVER".]
- Pull out the CHASSIS BASE. [See "Removing the CHASSIS BASE".]

1. Hold down hook Ⓚ, and remove the front control base in the direction of the arrow.

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■ DIAGNOSIS

Note : Before starting work, remove the power plug from the outlet.

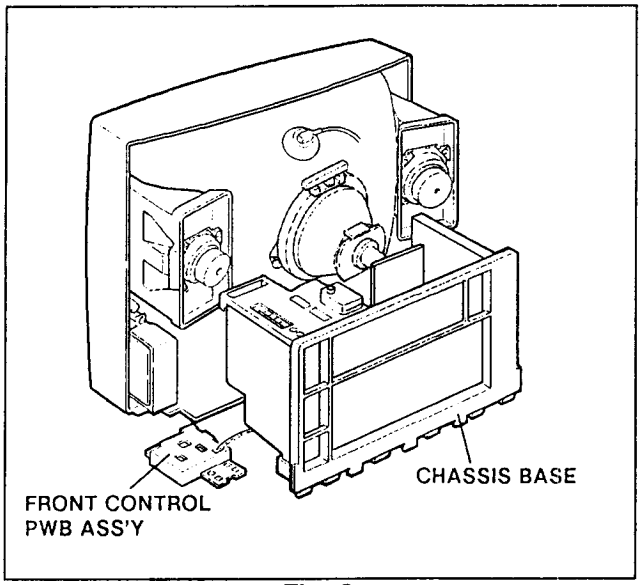

Fig. 8

Erecting the CHASSIS BASE

- Remove the REAR COVER. [See "Removing the REAR COVER".]
- Pull out the CHASSIS BASE. [See "Removing the CHASSIS BASE".]
- Remove the FRONT CONTROL PWB ASS'Y and LINE FILTER PWB ASS'Y. [See "Removing the FRONT CONTROL PWB ASS'Y".]

1. Erect the CHASSIS BASE.

Note :

- When the CHASSIS BASE is erected, confirm that each connector has been plugged in securely.
- The PWBs must not contact each other when the CHASSIS BASE is erected. if there is a possibility that they will contact each other, put a piece of paper between them.

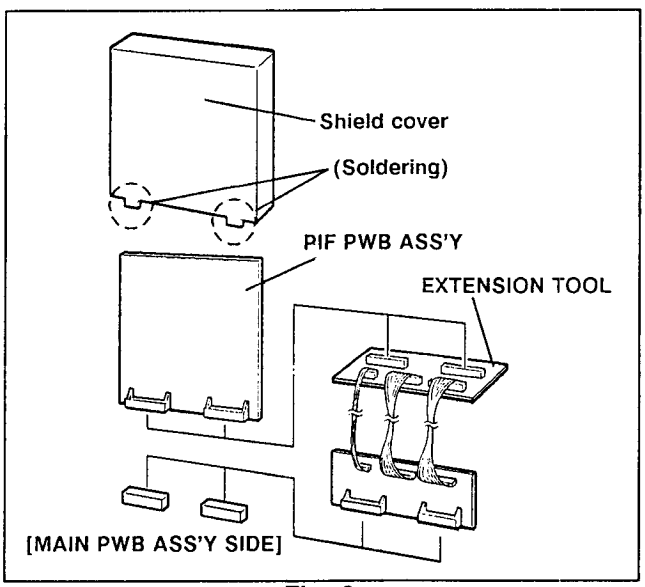

Fig. 9

Diagnosis of the PIF PWB ASS'Y

- To diagnose the PIF PWB ASS'Y, an extension connector is required. Use the EXTENSION TOOL (TV-J003 = for IF).

1. Remove the shield cover that encloses the PIF PWB ASS'Y.
2. Lift off the PIF PWB ASS'Y.
3. Connect the EXTENSION TOOL (TV-J003) between the PIF PWB ASS'Y and MAIN PWB ASS'Y.
4. After diagnosis, remove the extension tool, and reinstall the PWB and the shield.

Note :

- When the PIF PWB ASS'Y is diagnosed with the EXTENSION TOOL, the PIF PWB ASS'Y must not touch another PWB.

■ REPLACEMENTS

Replacement of MEMORY ICs

The TV contains several EEP-ROM ICs. If these ICs are replaced, data must be reinput. IC704 and IC707 on the MAIN PWD ASS'Y store setting of video, deflection, and sound. If they are replaced with new ones., they do not contain data, and correct images cannot be displayed.

•IC704 (CAT35C104HP) on the MAIN PWB ASS'Y

This IC is mainly data of the items listed in Table 1 and 2.

1. Symptom after IC replacement
   Pictures and sound are produced, but the broadcasts cannot received because no real channel is preset.
2. Replacement procedure

1) Before replacing the IC, receive a broadcast, and write down the values of the items listed in the Table 1.
2) Switch the power off and unplug the power cord.
3) Replace IC704.
4) Plug the power cord in and switch the power on.
5) Set the values written down in step 1 with the remote control unit.

3. Data setting

1) First, "PR channel" to receive broadcast. [See the OPERATING INSTRUCTIONS.]
2) Set the "MENU language". [See the OPERATING INSTRUCTIONS.]
3) Set the "VSM-STD(0)". [See "SETTING AND ADJUSTMENT IN THE PRESET MODE" on page 2-20.]
4) The other items can be set in any order. Set each of them.

① Table 1 lists the items set by the user. Select and set each of the items on the MENU screen. [See the OPERATING INSTRUCTIONS.]
② Table 2 lists the items set by the serviceman. Select and set each of the items on the PRESET MODE screen. [See "SETTING AND ADJUSTMENT IN PRESET MODE" on page 2-20.]

•IC707 (24C01A/P) on the MAIN PWB ASS'Y

This IC stores deflection adjustment values. [See Table 3.]

1. Symptom after IC replacement
   Picture are not displayed correctly.
2. Replacement procedure

1) Switch the power off and unplug the power cord.
2) Replace IC707.
3) Plug the power cord in and switch the power on.
4) Receive a TV broadcast.
5) Enter "PRESET MODE".
6) Select "DEFLECTION" and set each of the items listed in Table 3. [See "SETTING AND ADJUSTMENT IN THE PRESET MODE" on page 2-20.]

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Item to be set

User setting

Menu \ Mode	Item to be set in TV mode	Item to be set in EXT mode
SET UP		
PROGRAM	○	×
LANGUAGE	○	○
OPTIONS	○	×
PR SUMMARY	○	×
EXT SETTING	×	○
PICTURE		
VSM 1	○	○
VSM 2	○	○
VSM 3	○	○
VNR	○	○
SOUND		
TONE	○	○
MUTE	○	○
MULTI SOUND	○	×
FEATURES		
SET CLOCK	○	○
LOCKS	○	×
AUTO SHUT OFF	○	×

Table 1

Serviceman setting

Preset mode	Setting item		
VSM STD(0)	TINT	COLOUR	BRIGHT
	CONTRAST	SHARP	
CINEMA	TINT	COLOUR	BRIGHT
	CONTRAST	SHARP	BASS
	TREBLE	BALANCE	
SUB-VSM	TINT	COLOUR	SHARP
	(PAL / NTSC3.58 / NTSC4.43)		

Table 2

Serviceman setting

DEFLECTION item	Variable range
1. V-LIN	-16~+15
2. V-SIZE	-32~+31
3. H-SIZE	-32~+31
4. EW-PIN	-32~+31
5. TRAPEZ	-32~+31
6. V-S. CR	0~31
7. V-EDGE	0~15
8. EW-COR	0~15

Table 3

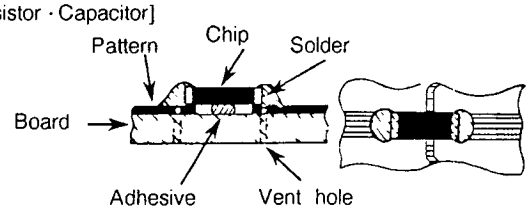
Replacement of CHIP COMPONENTS

- **CHIPS ARE NOT USED ON CERTAIN MODELS. REFER TO THE DESCRIPTIONS ON THIS PAGE ONLY WHEN WORKING ON MODELS ON WHICH CHIPS ARE EMPLOYED.**

Replacement of the chip on printed circuit board can be performed easily as follows.

1 **When mounted**

[Resistor · Capacitor]



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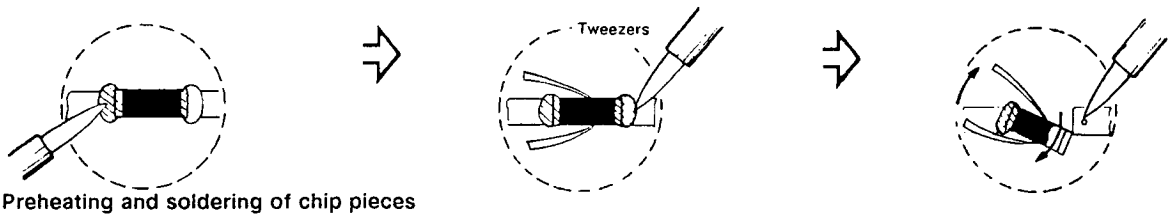
2 **Removal of the chip**

(1) Remove either of the soldered contacts.

(2) Hold the chip with tweezers and remove the other contact.

(3) Work the chip free from the adhesive with tweezers.

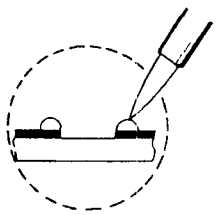


3 **Preheating and soldering of chip pieces**

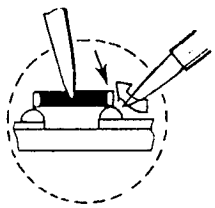
Be sure to preheat chip pieces (except the transistor) especially the capacitor before soldering with hot air, about 150°C (hair dryer or such can be used) for about 2 minutes. Then, immediately solder with an iron of about 30W.

4 **Replacing the chip pieces**

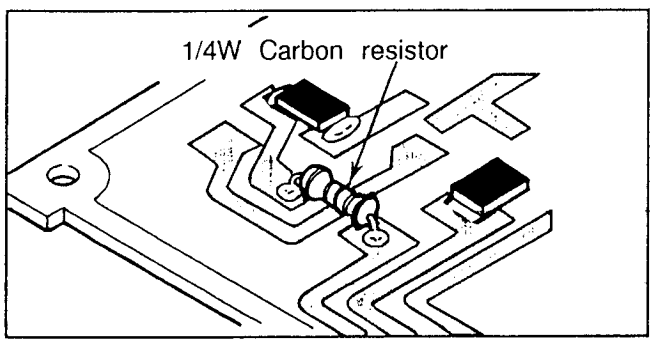
(1) Apply the solder to the board first.



(2) Hold the chip with tweezers and solder it in place, hold the iron at a 45° angle when soldering.

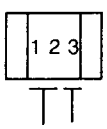


- Discrete parts can be substitutionally mounted as shown in the figure on the right.
  Mounting is also possible by passing the wires from the board front side (parts side) through the chip soldering hole (vent hole of registration part).
  Substitute parts are as follows.
  - Chip Metal Glaze Resistor
    →Carbon Resistor 1/4W ±5%
  - Chip Ceramic Capacitor
    →Ceramic Capacitor 50V ±5%



- Decoding of chip parts constant terms

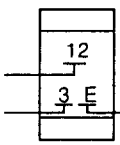
<Chip Metal Glaze Resistor>



Constant term: 1 2
Multiplier: 3

12×10^3 = 12000Ω
= 12kΩ

<Chip Ceramic Capacitor>



Constant term: 12
Multiplier: 3

K , M , Z , P · · · · · Tolerance of ordinary type

C , P , R , S , T , U · · Temperature coefficient of temperature compensation type

12×10^3 = 12000pF
= 0.012μF

SERVICE ADJUSTMENTS

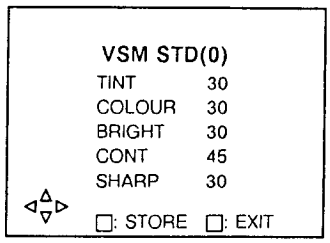
■ PRIOR TO STARTING ADJUSTMENT

● Before starting adjustment

1. Turn the TV and measuring equipment on and allow them to warm up (at least 30 minutes) before starting adjustment.
2. Check that the AC power (240V AC) is being supplied correctly.
3. If the receive or input signal is not specified, use the most appropriate signal for the adjustment.
4. Never touch parts (such as VRs, transformers, and capacitors) not shown in the adjustment items.
5. The ADJUSTMENT LOCATION on all PWBs are included in the STANDARD CIRCUIT DIAGRAM. See this diagram.
6. Preparation for adjustment (presetting)

1) VSM (Video Status Memory)

● Set the TINT(30), COLOUR(30), BRIGHT(30), CONT.(45) and SHARP(30) levels.
(The setting for VSM STD(0) see " PRESET MODE " on page 2-20.)



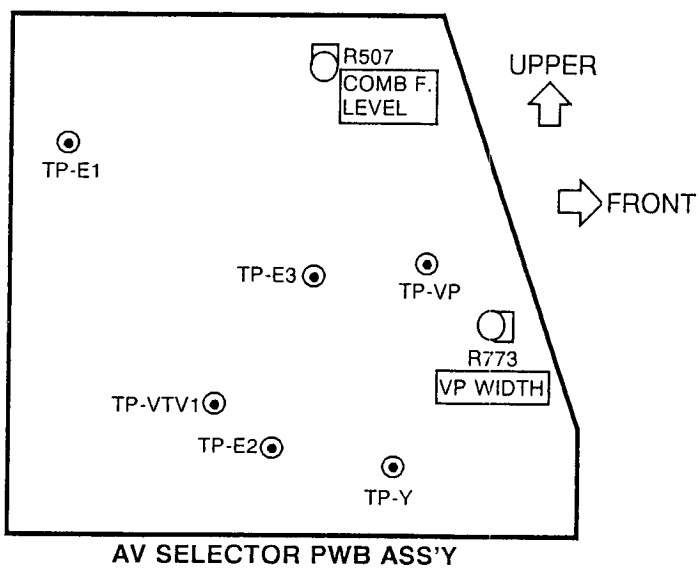
● After adjustment, set them to their original levels.

2) SSM (Sound Status Memory) : Standard
3) Colour system : AUTO
4) 16:9 : OFF (4:3)
5) CINEMA : OFF
6) VNR : OFF

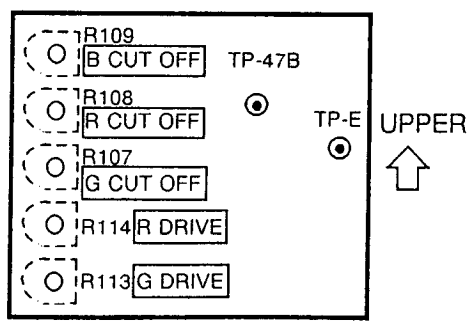
■ TOOLS AND FIXTURES FOR ADJUSTMENT

1. DC voltmeter (or digital voltmeter)
2. Oscilloscope [2 trace, delay function].
3. Signal generator (Pattern generator) [PAL / NTSC]
4. Multiplex audio signal generator
5. Remote control unit [RM-C873]

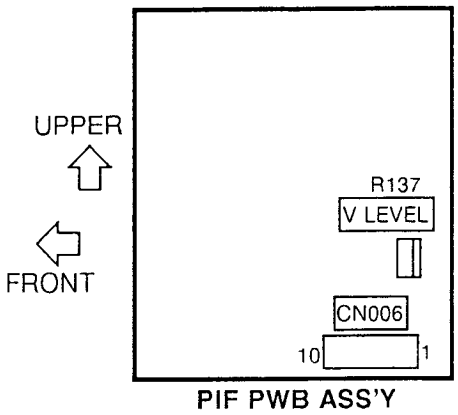
■ ADJUSTMENT LOCATIONS



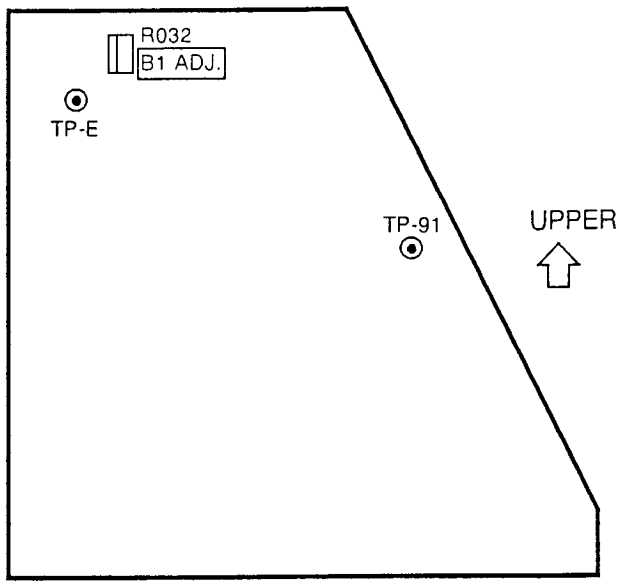
AV SELECTOR PWB ASS'Y



CRT SOCKET PWB ASS'Y



PIF PWB ASS'Y



POWER PWB ASS'Y

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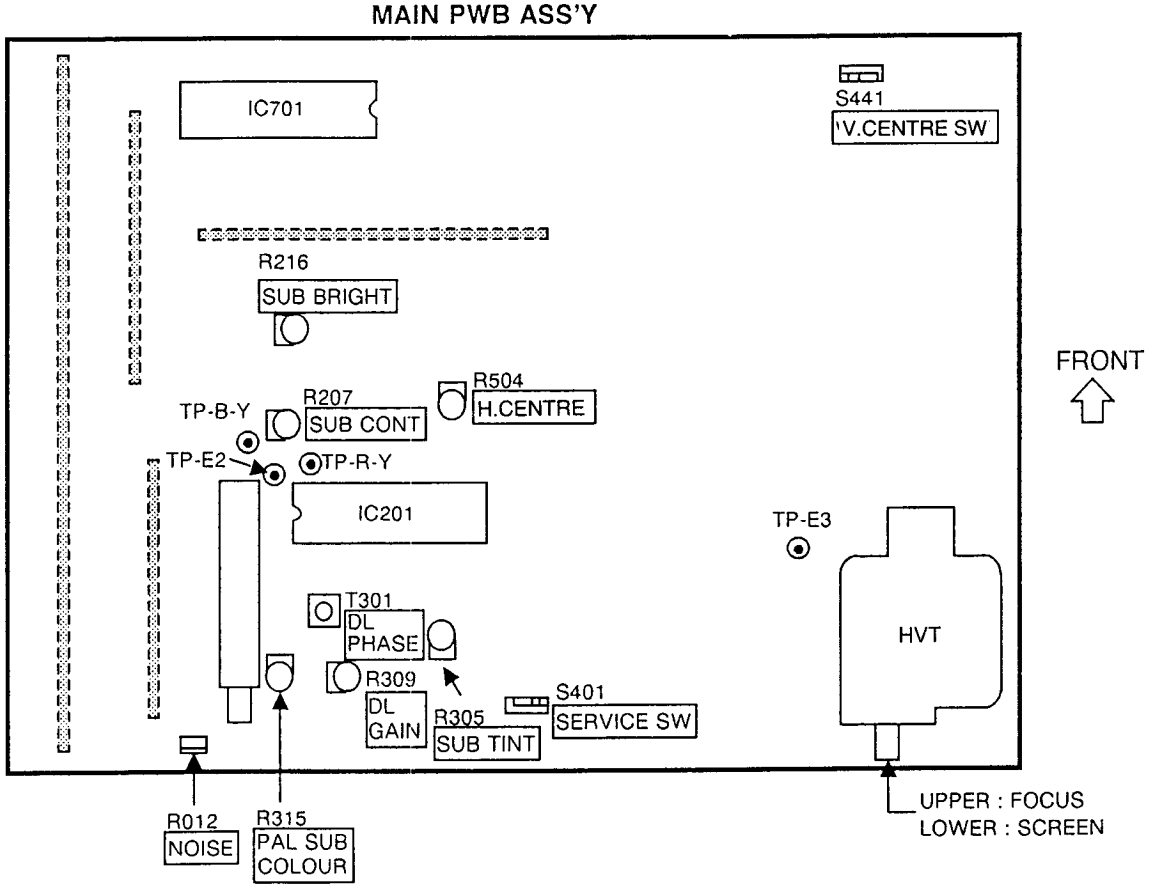
MAIN PWB ASS'Y



■ ELECTRICAL ADJUSTMENT

Item	Measuring instrument	Test point	Adjustment part	Description
1. B1 VOLTAGE adjustment	DC voltmeter	TP-91	B1 ADJ. VR (R032) [POWER]	1. Receive an entirely black signal. 2. Connect the DC voltmeter to TP-91. 3. Set 146 ± 0.5V DC with the B1 ADJ. VR.
2. NOISE (RF AGC) adjustment			NOISE VR (R012) [MAIN]	1. Receive a broadcast. 2. Turn the NOISE VR so that noise appears on the display. 3. Turn the NOISE VR until the noise disappears. 4. Change the channel and check that the display is normal.
3. FOCUS adjustment	Signal generator		FOCUS VR [built-in FBT]	1. Receive the cross-hatch signal. 2. Make the vertical and horizontal lines as thin and clear as possible. Turn the control as for counterclockwise as possible (to decrease voltage). 3. Darken the screen and check the focus is correct.
4. DEFLECTION SYSTEM adjustment				• **See the setting and adjustment in the PRESET MODE on page 2-20.**
5. WHITE BALANCE (LOW LIGHT & HIGH LIGHT) adjustment			R CUT OFF VR (R108) G CUT OFF VR (R107) B CUT OFF VR (R109) R DRIVE VR (R114) G DRIVE VR (R113) [CRT SOCKET] SERVICE SW (S401) [MAIN] SCREEN VR [built-in FBT]	1. Receive a black and white broadcast. 2. Turn the R, G and B CUT OFF VRs counterclockwise. 3. Set the R and G DRIVE VRs to the centre positions. 4. Display one horizontal line. (Select the SERVICE SW from N to S.) 5. Turn the SCREEN VR slowly until one red, green or blue horizontal line appears faintly. 6. Turn the CUT OFF VR for the first colour that appears about 10 degrees clockwise, and adjust the SCREEN VR again so that this colour appears faintly. 7. Adjust the CUT OFF VRs for the other two colours so that the colour has the same intensity as the colour of the horizontal line that appeared in step 6 and the three colours light faintly at the same level. 8. Return the horizontal line to the original state. (Select the SERVICE SW from S to N.) 9. Display a normal, bright white screen using the R and G DRIVE VRs.
6. VIDEO DETECTION OUTPUT LEVEL adjustment	Signal generator Oscilloscope [H-rate]	Connector-006 pin-6 [PIF] or (TP-VTV1 AV SELECTOR)	V. DET. LEVEL VR (R137) [PIF]	1. Receive the PAL split colour bar signal (including 100% white). 2. Connect the oscilloscope to pin-6 of the connector-006 (or TP-VTV1). 3. Set the voltage from the synchronizing signal to the white level to 1.5Vp-p with the V. DET. LEVEL VR.

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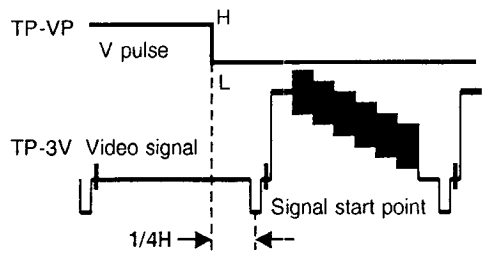
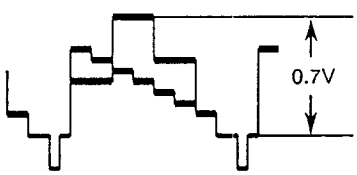
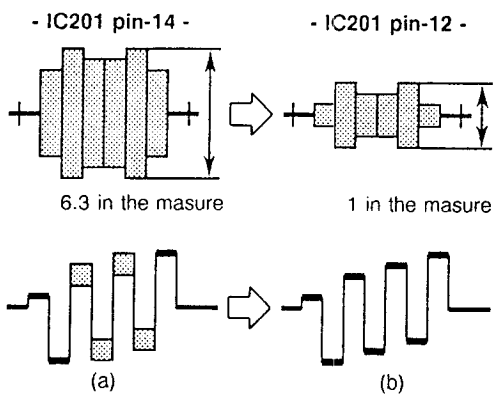
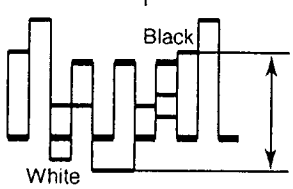
Item	Measuring instrument	Test point	Adjustment part	Description
7. VERTICAL PULSE WIDTH adjustment	Signal generator Oscilloscope [V-rate]	TP-VP TP-3V	VP WIDTH VR (R773) [AV SELECTOR]	1. Receive the PAL split colour bar signal. 2. Connect the oscilloscope to TP-VP and TP-3V. 3. Set the oscilloscope sweep time to the vertical scanning period. 4. Set the oscilloscope to delay mode and enlarge the signal start point. 5. Adjust the VP WIDTH VR so the vertical pulse changes from high to low 1/4H before colour bar signal starts.
8. COMB FILTER INPUT LEVEL adjustment	Signal generator Oscilloscope [H-rate]	TP-VTV1 TP-Y	COMB F. LEVEL VR (R507) [AV SELECTOR]	1. Receive the PAL split color bar signal (including 100% white). 2. Connect the oscilloscope to TP-VTV1, and confirm that the peak-to-peak voltage of the signal is 1.5 Vp-p. If not, perform "VIDEO DETECTION OUTPUT LEVEL adjustment" again. 3. Connect the oscilloscope to TP-Y. 4. Adjust the range from the pedestal level to the white level to 0.7V with the COMB F. LEVEL VR.





Item	Measuring instrument	Test point	Adjustment part	Description
9. DELAY LINE MATRIX adjustment	Signal generator Oscilloscope [H-rate]	IC201 pin-14 IC201 pin-12 TP-B-Y	DL GAIN VR (R309) DL PHASE transformer (T301) [MAIN]	1. Receive the PAL colour bar signal. 2. Connect the oscilloscope to IC201 pin-14. 3. Adjust the variable button of the oscilloscope so that the p-p value of the waveform (chroma signal) becomes 6.3 divisions on the screen of the oscilloscope. 4. While maintaining this state, then connect the oscilloscope to IC201 pin-12. 5. Adjust DL gain VR so that the p-p value of the waveform becomes 1 (−16dB) divisions on the screen of the oscillosope. 6. Connect the oscilloscope to TP-B-Y. 7. Adjust with the DL PHASE transformer so that the waveform changes from (a) to (b) shown in the figure. 8. Repeat adjustments steps 2 and 7 as required.
10. SUB BRIGHT adjustment	Signal generator		SUB BRIGHT VR (R216) [MAIN]	• Check the WHITE BALANCE is adjusted. 1. Receive an entirely black signal. 2. Adjust the SUB BRIGHT VR until the entire screen lights.
11. SUB CONTRAST adjustment	Signal generator Oscilloscope [H-rate]	TP-47B [CRT SOCKET]	SUB CONTRAST VR (R207) [MAIN]	• Check the SUB BRIGHT is adjusted. 1. Receive the PAL split colour bar signal. 2. Adjust so that the best image appears on the screen with the SUB CONTRAST VR. **[If measuring equipment is used]** 1. Receive the PAL split colour bar signal. 2. Connect the oscilloscope to TP-47B. 3. Adjust to refer to figure the voltage between the white and black levels with the SUB CONTRAST VR.





88V = AV-25S1EK
90V = AV-28S1EK

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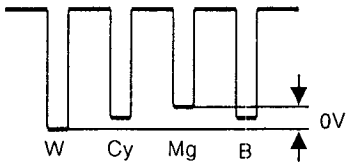
Item	Measuring instrument	Test point	Adjustment part	Description
12. PAL/NTSC SUB COLOUR adjustment				• **See the setting and adjustment in the PRESET MODE on page 2-20 .**
13. NTSC SUB TINT adjustment	Signal generator Oscilloscope [H-rate]	TP-47B [CRT SOCKET]	SUB TINT VR (R305) [MAIN]	• Check the SUB COLOUR is adjusted. 1. Input the NTSC (3.58MHz) colour bar signal from the 21-pin external input connector(EXT1 or EXT2). 2. Change the input mode to the signal input connector (EXT1 or EXT2). 3. Adjust so that the best image appears on the screen with the SUB TINT VR. 4. If you cannot adjust correctly with the SUB TINT VR, select SUB VSM TINT and adjust to the best value with the (-) and (+) keys on the remote control unit. 5. Use EXT3 (S-VIDEO input) for input, and adjust in the same way. 6. Use the NTSC(4.43MHz) signal, and perform steps 1 to 5 in the same way. **[If measuring equipment is used]** 1. Input the NTSC (3.58MHz) colour bar signal from the 21-pin external input connector(EXT1 or EXT2). 2. Change the input mode to the signal input connector (EXT1 or EXT2). 3. Connect the oscilloscope to TP-47B. 4. Adjust so that there is no difference (0V) between white and magenta with the SUB TINT VR. 5. If you cannot adjust correctly with the SUB TINT VR, select SUB BSM TINT and adjust to the best value with the (-) and (+) keys on the remote control unit. 6. Use EXT3 (S-VIDEO input) for input, and adjust in the same way. 7. Use the NTSC(4.43MHz) signal, and perform steps 1 to 6 in the same way.



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■ SETTING AND ADJUSTMENT IN THE PRESET MODE

1. Set the following four items in the PRESET MODE

1. VSM STANDARD
2. CINEMA
3. SUB-VSM
4. DEFLECTION

★ For the operations and detailed settings in the PRESET MODE, see items below.

2. Basic operations in the PRESET MODE

(1) Entering the PRESET MODE

Press the DISPLAY key and VSM STANDARD key on the remote control unit at the same time.

The PRESET MODE menu screen shown Fig. 1 is displayed.

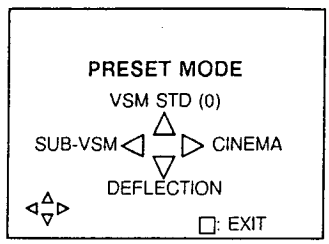

Fig. 1 Menu screen

(2) Adjustment item selection

1) To select an adjustment item, press the UP, DOWN, R or L key on the remote control unit.

The sub-menu for the selected adjustment item as shown Fig. 2 is displayed.

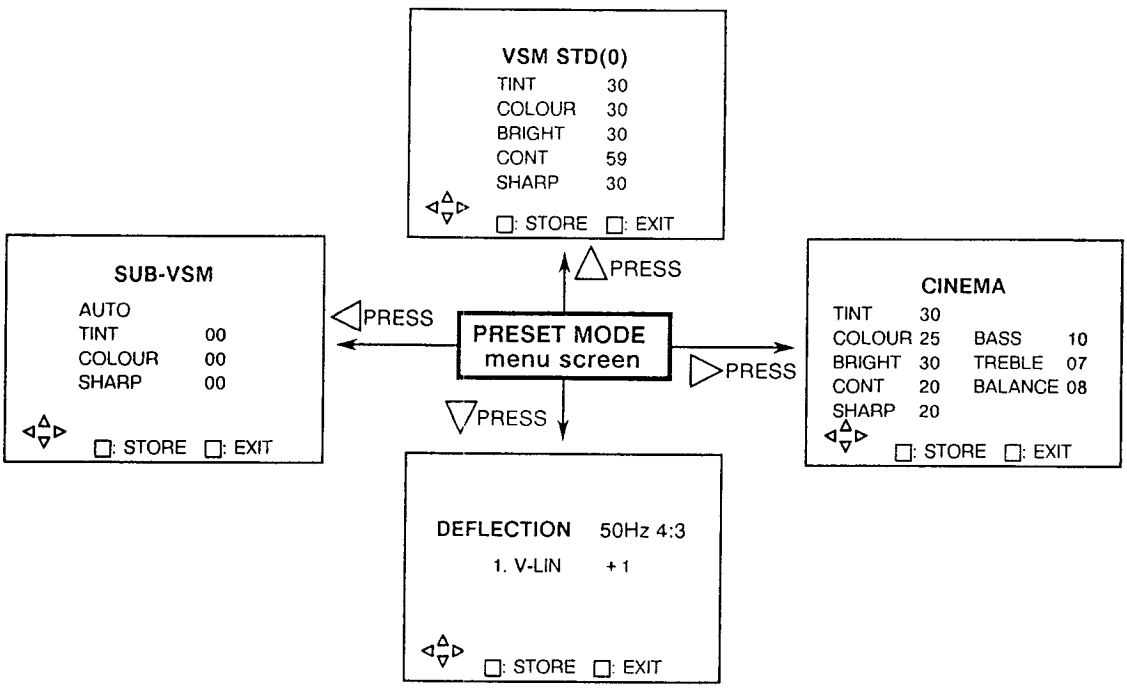

Fig. 2 Sub-menu screen

2) Adjustment items are displayed on the sub-menu screen. Select an item by pressing the UP or DOWN key.

(3) Adjustment and setting

1) Enter the PRESET MODE. [See item (1).]
2) Select an adjustment item. [See item (2).]
3) Press the L or R key and adjust the setting of the selected adjustment item.
4) If adjustment is continued, repeat steps 2 and 3.
5) If all adjustments are complete, press the OK (STORE) key to store the adjustment values in memory.
6) Press the EXIT key to return to the menu screen.

(4) PRESET MODE termination

1) After adjustment is complete and the menu screen returns, press the EXIT key again.

NOTE :

The symbols for remote comtroll unit keys in the text correspond to the keys listed in the table below.

REPRESENTATION	KEY
DISPLAY	+
VSM STANDARD	VSM → · ←
OK, STORE, MEMORY	OK
EXIT	△
UP	△
DOWN	▽
-, L, LEFT	◁
+, R, RIGHT	▷

VSM STD(0), CINEMA, SUB-VSM setting and adjustment method

<table>
<tr><th>Item</th><th>Measuring instrument</th><th>Test point</th><th>Adjustment part</th><th>Description</th></tr>
<tr><td>1.
VSM STANDARD setting</td><td>Remote control unit

<table><tr><th>Adjustment item</th><th>Setting value</th></tr><tr><td>TINT</td><td>30</td></tr><tr><td>COLOUR</td><td>30</td></tr><tr><td>BRIGHT</td><td>30</td></tr><tr><td>CONT</td><td>59</td></tr><tr><td>SHARP</td><td>30</td></tr></table></td><td></td><td></td><td>1. Display the PRESET MODE menu on the screen and select "VSM STD (0)".
2. Select TINT and set its adjustment value to "30" with the (-) or (+) key.
3. Set other adjustment items to the values listed in the table on the left in the same way.</td></tr>
<tr><td>2.
CINEMA setting</td><td>Remote control unit

<table><tr><th>Adjustment item</th><th>Setting value</th><th>Adjustment item</th><th>Setting value</th></tr><tr><td>TINT</td><td>30</td><td></td><td></td></tr><tr><td>COLOUR</td><td>25</td><td>BASS</td><td>10</td></tr><tr><td>BRIGHT</td><td>30</td><td>TREBLE</td><td>07</td></tr><tr><td>CONT</td><td>20</td><td>BALANCE</td><td>08</td></tr><tr><td>SHARP</td><td>20</td><td></td><td></td></tr></table></td><td></td><td></td><td>1. Display the PRESET MODE menu on the screen and select "CINEMA".
2. Select TINT and set its adjustment value to "30" with the (-) or (+) key.
3. Set other adjustment items to the values listed in the table on the left in the same way.

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<tr><td>3.
SUB-VSM setting and adjustment</td><td>Remote control unit

<table><tr><th>Receive signal / Adjustment item</th><th>PAL</th><th>NTSC 3.58</th><th>NTSC 4.43</th></tr><tr><td>[Comp. V]</td><td></td><td></td><td></td></tr><tr><td>TINT</td><td>—</td><td>00</td><td>00</td></tr><tr><td>COLOUR</td><td>00</td><td>00 *2</td><td>00 *3</td></tr><tr><td>SHARP</td><td>00</td><td>+05</td><td>+15</td></tr><tr><td>[Sep. V]</td><td></td><td></td><td></td></tr><tr><td>TINT</td><td>—</td><td>+03</td><td>00</td></tr><tr><td>COLOUR</td><td>00</td><td>(*2)</td><td>(*3)</td></tr><tr><td>SHARP</td><td>00</td><td>00</td><td>00</td></tr></table>
COLOUR and SHARP for separated video cannot be adjusted (they are simply displayed on the screen). The adjustment values of COLOUR for composite video are displayed at (*2) and (*3) in the table.</td><td></td><td></td><td>[SETTING]
1. Receive the PAL split colour bar signal.
2. Display the PRESET MODE menu on the screen and select "SUB-VSM".
3. Select COLOUR and set its adjustment value to "+00" with the (-) or (+) key.
4. Select SHARP and set its adjustment value to "+00" with the (-) or (+) key.
5. Set the NTSC3.58 and NTSC4.43 in the same way. Receive each colour system signal and set it to the value listed in the table on the left.
★ For TINT, adjust for both the composite video input (EXT1 or EXT2) and separated video input.
★ If the EEP-ROM IC (IC704) is replaced, make sure you carry out this setting.
★ If the screen becomes abnormal or if a component associated with COLOUR is replaced, set the values listed in the table (SUB-VSM setting) and perform the "PAL / NTSC SUB COLOUR adjustment".</td></tr>
</table>

Item	Measuring instrument	Test point	Adjustment part	Description
<PAL / NTSC SUB COLOUR adjustment>	Signal generator Oscilloscope [H-rate] Remote control unit	TP-47B [CRT SOCKET]	PAL SUB COLOUR VR (R315) [MAIN]	[ADJUSTMENT] • Check the SUB CONTRAST is adjusted. (See page 2-18.) 1. Receive the PAL split colour bar signal. 2. Display the PRESET MODE menu on the screen and select "SUB-VSM". 3. Check the COLOUR level is "+00". If not, select COLOUR, and set it to +00 with the (-) or (+) key, and store it in memory with the OK key. 4. Adjust the PAL SUB COLOUR VR and set the screen colour density to the best value. 5. Input the NTSC (3.58MHz) colour bar signal from the 21-pin external input connector(EXT1 or EXT2). 6. Change the input mode to the signal input connector (EXT1 or EXT2). 7. Select COLOUR and set the screen colour density to the best value with the (-) or (+) key. 8. Input the NTSC (4.43MHz) clolour bar signal, and adjust in the same way. 9. Press the OK key to store the adjustment value in memory. [If measuring equipment is used] 1. Receive the PAL split colour bar signal. 2. Display the PRESET MODE menu on the screen and select "SUB-VSM". 3. Check the COLOUR level is "+00". If not, select COLOUR, set it to +00, and press the OK key to store it in memory. 4. Connect the oscilloscope to the TP-47B. 5. Adjust so that the difference between white and blue is difference (-4V) with the PAL SUB COLOUR VR. 6. Input the NTSC (3.58MHz) colour bar signal from the 21-pin external input connector(EXT1 or EXT2). 7. Change the input mode to the signal input connector (EXT1 or EXT2). 8. Select COLOUR and adjust so that there is no difference (0V) between white and blue. 9. Input the NTSC (4.43MHz) clolour bar signal, and adjust in the same way. 10. Press the OK key to store the adjustment value in memory.

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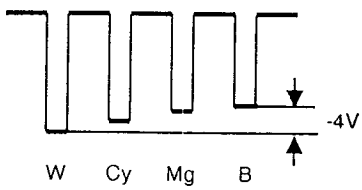
<PAL>



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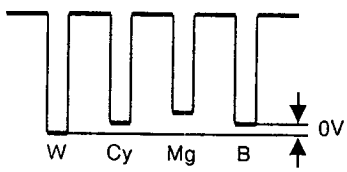

4. Deflection adjustment method

- Before this adjustment is conducted, confirm that the "B1 VOLTAGE", "NOISE (RF AGC)", and "FOCUS" have been adjusted correctly.
- There are four adjustment modes according to the signals and aspect size. The screens are displayed in the following order.
  ① 50Hz 4:3 screen ② 50Hz 16:9 screen
  ③ 60Hz 4:3 screen ④ 60Hz 16:9 screen
  ★ 50Hz = PAL 60Hz = NTSC (3.58 / 4.43)
- The basic mode is "① 50Hz 4:3 screen", and the others are auxiliary. So perform adjustment ① first, and perform other adjustments if any item is incorrect.
- If the keys associated with the following operations are pressed before storing the adjustment value with the OK key, the value before adjustment returns. To prevent this, do not press these keys.
  ★Power on/off, EXIT, 16:9 screen switching, Input selecting, Channel selecting.
- Display of adjustment values in adjustments ②, ③, and ④
  If the adjustment value is displayed in magenta, it is outside the adjustment range and overflows in the + or - direction. Adjustment data becomes the maximum or minimum value in that mode. So the actual adjustment data and screen are not changed until the adjusted data is within the adjustment range.

Adjustment state	Adjustment value display colour	Adjustment data	Screen change
Overflow	Magenta	Fixed (maximum or minimum)	None
Within adjustment range	Blue	Variable	Yes

• Adjustment procedure

Item	Measuring instrument	Test point	Adjustment part	Description
DEFLECTION SYSTEM adjustment				

• Reference adjustment value

Adjustment item	Adjustment name	Variable range	AV-28S1EK Reference adjustment value				AV-25S1EK Reference adjustment value			
			50 4:3	50 16:9	60 4:3	60 16:9	50 4:3	50 16:9	60 4:3	60 16:9
1. V-LIN	Vertical linearity	-16~+15	+6	+8	+6	+5	+6	+9	+5	+5
2. V-SIZE	Vertical hight	-32~+31	+13	-6	+12	-7	+10	-10	+10	-10
3. H-SIZE	Horizontal width	-32~+31	+3	+3	+3	+3	+5	+5	+5	+5
4. EW-PIN	Side pin correction	-32~+31	-2	-16	-1	-16	-5	-19	-3	-18
5. TRAPEZ	Trapezoidal distortion correction	-32~+31	-4	-4	-2	-2	-8	-16	-7	-7
6. V-S.CR	Vertical hight correction	0~31	19	12	20	13	20	13	21	14
7. V-EDGE	Vertical hight peripheral correction	0~15	15	11	15	11	15	11	15	11
8. EW-COR	Side pin four corner correction	0~15	10	6	10	5	9	2	9	2
9. V-COMP	Vertical high voltage variation control	0~15	4	4	4	4	4	4	4	4
10. H-COMP	Horizontal high voltage variation control	0~15	0	0	0	0	0	0	0	0

- Normally, perform fine adjustment using the reference adjustment values listed above. (Since they are reference values, the set may not be set to the values listed in the above table.)
- Do not change "9. V COMP" and "10. H COMP".

Item	Measuring instrument	Test point	Adjustment part	Description
	Signal generator Remote control unit		**V.CENTRE SW (S441)** **H.CENTRE VR (R504) [MAIN]**	1. Receive the monoscope signal. (If the monoscope is not available, receive the cross-hatch signal.) 2. Display the PRESET MODE menu on the screen and select "DEFLECTION". 3. Select "1. V-LIN" and adjust it so that the upper and lower parts of the screen are balanced with the (-) or (+) key. 4. If the vertical centre is shifted, change the V.CENTRE SW to the best position. 5. Select "2. V-SIZE" and adjust it so that the height of the display area is about 92% of the screen height with the (−) or (+) key. (Fig 1) 6. Adjust the H. CENTRE VR so that the right and left margins are equal (A = B). Fig. 2) 7. Select "3. H-SIZE" and adjust it so that the width of the display area is about 92% of the screen width with the (-) or (+) key. 8. Check the image is balanced vertically and horizontally. Repeat steps 3 to 7 if required. 9. Receive the cross-hatch signal. 10. Select "4. EW-PIN" and adjust so that the vertical lines at the right and left ends are curved with the (-) or (+) key. The second line from right must be straight. (Fig. 3) 11. Select "5. TRAPEZ" and adjust so that all vertical lines are parallel to each other with the (-) or (+) key. (Especially, pay attention to the intervals of the lines at the right and left ends and in the middle.) 12. Check the screen and repeat steps 3 to 11 as required. ★ If the screen cannot be adjusted correctly by "1. V-LIN" to "5. TRAPEZ", use "6. V-S. CR", "7. V-EDGE", and "8. EW-COR". ★ When the "① 50Hz 4:3" adjustment ends, change the signal, screen size, and input mode, and check the "② 50Hz 16:9", "③ 60Hz 4:3", and "④ 60 Hz 16:9" modes. If adjustment is incorrect, perform fine adjustment.

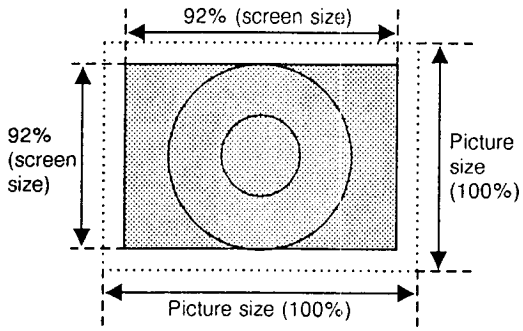

Fig. 1

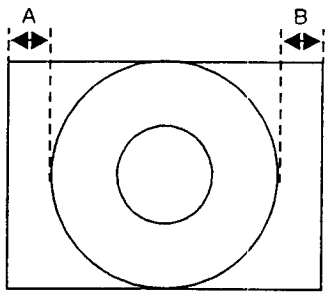

Fig. 2

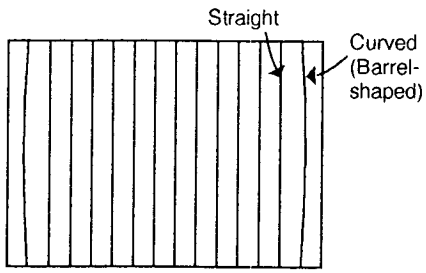

Fig. 3

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PARTS LIST

CAUTION

- The parts marked ⚠ are very important for the safety. When replacing these parts, be sure to use specified ones to secure the safety and performance.
- The module circuit board is supplied together with the assembly, but the parts which do not have the drawing in this Parts List, P. C. Board Ass'y and the Parts No. columns of which are filled with lines —— . will not be supplied.
- As a rule, the resistors and capacitors which are indicated as shown in (NOTE 2) "HOW TO EXPRESS PARTS NUMBERS OF STANDARD PARTS" are not shown in the list of the parts on the board.
  When ordering the service parts, confirm the resistance/rated power, capacitance/rated voltage, and type of the parts, then order by the part No. indicated according to (NOTE 2).

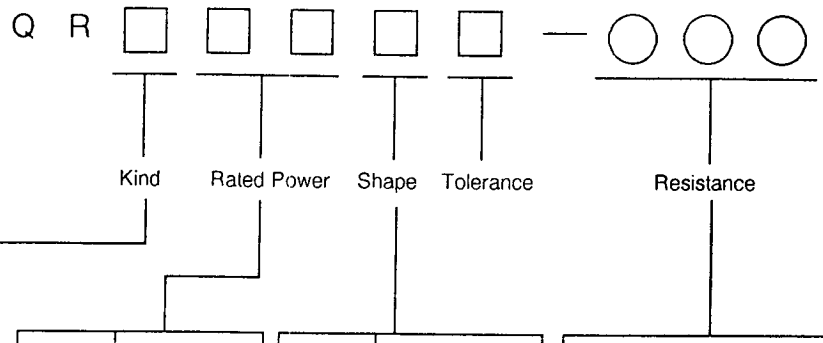
(NOTE 1) ABBREVIATIONS OF RESISTORS, CAPACITORS AND TOLERANCES

RESISTORS		CAPACITORS	
C R	Carbon Resistor	C CAP.	Ceramic Capacitor
F R	Fusible Resistor	E CAP.	Electrolytic Capacitor
P R	Plate Resistor	M CAP.	Mylar Capacitor
V R	Variable Resistor	HV CAP.	High Voltage Capacitor
HV R	High Voltage Resistor	MF CAP.	Metalized Film Capacitor
MF R	Metal Film Resistor	MM CAP.	Metalized Mylar Capacitor
MG R	Metal Glazed Resistor	MP CAP.	Metalized Polystyrol Capacitor
MP R	Metal Plate Resistor	PP CAP.	Polypropylene Capacitor
OM R	Metal Oxide Film Resistor	PS CAP.	Polystyrol Capacitor
CMF R	Coating Metal Film Resistor	TF CAP.	Thin Film Capacitor
UNF R	Non-Flammable Resistor	MPP CAP.	Metalized Polypropylene Capacitor
CH V R	Chip Variable Resistor	TAN. CAP.	Tantalum Capacitor
CH MG R	Chip Metal Glazed Resistor	CH C CAP.	Chip Ceramic Capacitor
COMP. R	Composition Resistor	BP E CAP.	Bi-Polar Electrolytic Capacitor
LPTC R	Linear Positive Temperature Coefficient Resistor	CH AL E CAP.	Chip Aluminum Electrolytic Capacitor
		CH AL BP CAP.	Chip Aluminum Bi-Polar Capacitor
		CH TAN. E CAP.	Chip Tantalum Electrolytic Capacitor
		CH AL BP E CAP.	Chip Tantalum Bi-Polar Electrolytic Capacitor

TOLERANCES									
F	G	J	K	M	N	R	H	Z	P
±1%	±2%	±5%	±10%	±20%	±30%	+30% - 10%	+50% - 10%	+80% - 20%	+100% - 0%

(NOTE 2) HOW TO EXPRESS PARTS NUMBERS OF STANDARD PARTS

■ RESISTOR



Symbol	Part Name
C	COMP.R
D	C R
S	CH MG R

Symbol	Rated Power
0 1	1 w
1 2	1/2 w
1 4	1/4 w
1 6	1/6 w
1 8	1/8 w

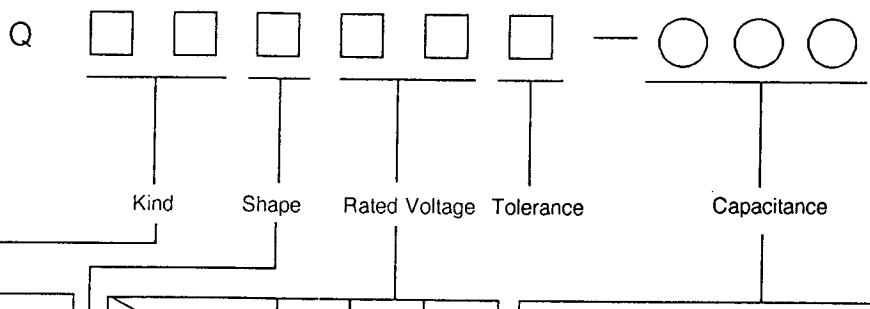
Symbol	Shape
1	Straight lead
8	Chip

Indicate with first two-figure expressed by Ω and following 0.
please note that,in case of resistance less than 10 Ω, a letter "R"will be effective as point.

EX.

2.2 Ω = 2R2
470 Ω = 47×10^1 → 471
150kΩ = 15×10^4 → 154

■ CAPACiTOR



Symbol	Part Name
CS	C CAP.
CS	CH C CAP.
ET	E CAP.
FM	M CAP.

5Figure / 6Figure	0	1	2
A		10V	100V
C		16V	160V
D			200V
E		25V	250V
H		50V	500V
J	6.3V	63V	
V		35V	

Indicate with first two-figure expressed by pF and following 0.
Please note that,in case of capacitance less than 10 pF a letter "R" will be effective as point.

EX

5pF = 5R0
1000pF = 10×10^2 → 102
47μF = 47×10^6 → 476

Symbol	Shape
1	Straight lead
1	Leads in the same direction
8	Chip
A	Leads in the same direction (compact part)

For Service Manuals Contact
MAURITRON TECHNICAL SERVICES
8 Cherry Tree Rd, Chinnor
Oxon OX9 4QY
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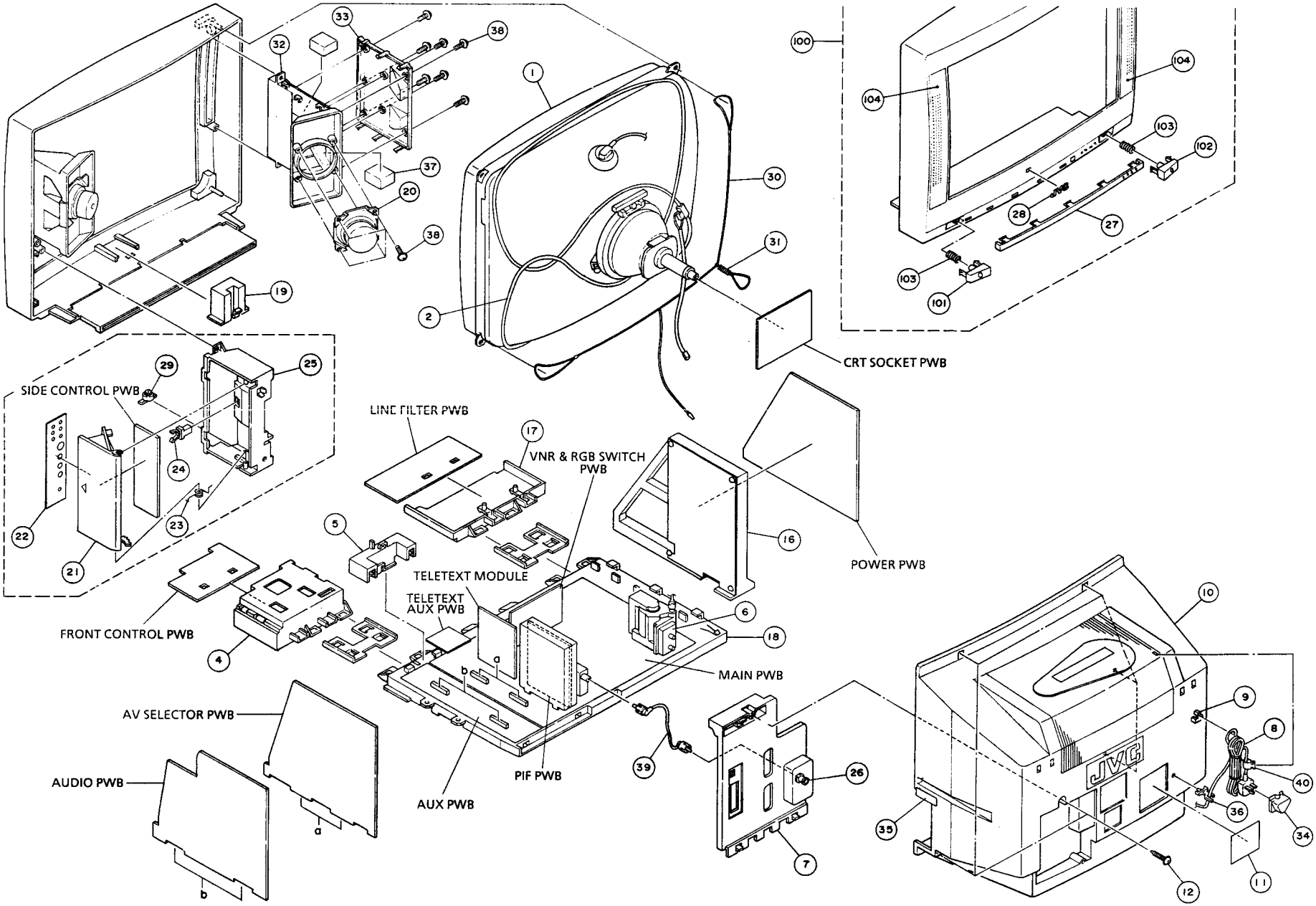
EXPLODED VIEW



EXPLODED VIEW PARTS LIST

⚠	Ref.No.	Part No.	Part Name	Description	Local
⚠	1	A59ECF10X05	PICTURE TUBE	V01 (AV-25S1EK)	*
⚠	1	A66ECF30X05	PICTURE TUBE	V01 (AV-28S1EK)	*
⚠	2	CELD019-002J2	DEGAUSSING COIL	(AV-25S1EK)	*
⚠	2	CELD020-002J2	DEGAUSSING COIL	(AV-28S1EK)	*
	4	CM22602-C01-E	CONTROL BASE		*
	5	CM35642-B01-E	PB STOPPER		*
⚠	6	CE42295-00AJ1	HVT(SERVICE)		*
	7	CM12374-D01-E	AV TER BASE		*
⚠	8	QMP51G0-200JB	POWER CORD		*
	9	CM46618-A01-E	CORD CLAMP		*
	10	CM12351-002-E	REAR COVER	(AV-25S1EK)	*
	10	CM12355-002-E	REAR COVER	(AV-28S1EK)	*
	11	CM21933-022-E	RATING LABEL	(AV-25S1EK)	*
	11	CM21933-023-E	RATING LABEL	(AV-28S1EK)	*
	12	GBSA4016N	TAPPING SCREW	×7	
	16	CM11754-E01-E	SIDE FRAME		*
	17	CM22601-A01-E	LF PB BASE		*
	18	CM12352-B01-E	CHASSIS BASE		*
	19	CM35752-A01-E	CRT SPACER		*
	20	FF102-L6-KD	SPEAKER	×2	
	21	CM12388-A02-E	SIDE DOOR		*
	22	CM35685-002-E	CONTROL SHEET		*
	23	CM47734-A01	SPRING		
	24	CM47638-00A	DOOR LATCH		
	25	CM22604-B01-E	SIDE BASE		*
	26	CE42112-001	PALJ CONNECTOR		
	27	CM12475-002	CONTROL PANEL	(AV-25S1EK)	
	27	CM12476-002	CONTROL PANEL	(AV-28S1EK)	
	28	CM47783-A01	JVC MARK		
	29	CM47136-00B	DAMPER		
	30	CHGB0010-0E-CE	BRAIDED ASSY	(AV-25S1EK)	*
	30	CHGB0010-0D-GS	BRAIDED ASSY	(AV-28S1EK)	*
	31	CHGB0011-0A-CE	BRAIDED ASSY		*
	32	CM12463-B01-E	HORN	×2	*
	33	CM12464-B01-E	HORN PANEL	×2	*
	34	AEM4039-001-E	PLUG COVER		*
	35	CM47876-001	DOOR SHEET		
	36	CM47877-001	CORD CLAMP		
	37	CM47846-001	DOME ABSORBER	×4	
	38	GBSA4016N	TAPPING SCREW	×22	
	39	CHGY0011-AA-Y	CONNECTOR ASSY		
	40	CM47888-001-E	CORD CLAMP		*
	100	CM12349-00B-E	FRONT CABI ASSY	Inc.No.101~104(25)	*
	100	CM12353-00B-E	FRONT CABI ASSY	Inc.No.101~104(28)	*
	101	CM35812-001	MAIN POWER KNOB		*
	102	CM35813-001	SUB POWER KNOB		*
	103	CM35110-002	SPRING	×2	*
	104	CM22605-E01	PUNCH SHEET	×2 (AV-25S1EK)	*
	104	CM22606-A01	PUNCH SHEET	×2 (AV-28S1EK)	*

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PRINTED WIRING BOARD PARTS LIST

MAIN PW BOARD ASS'Y (SMX-1903A-U2) [AV-25S1EK]

⚠	Symbol No.	Part No.	Part Name	Description			Local
	VARIABLE RESISTOR						
	R1012	QVPA603-223AZ	V R(NOISE)	22kΩ B			
	R1207	QVPE611-103HZ	V R(CONT.)	10kΩ B			
	R1216	QVPE611-103HZ	V R(BRIGHT)	10kΩ B			
	R1305	QVPE611-303HZ	V R(TINT)	30kΩ B			
	R1309	QVPE611-102HZ	V R(DL GAIN)	1kΩ B			
	R1315	QVPE611-103HZ	V R(PAL-C)	10kΩ B			
	R1504	QVPE611-501HZ	V R(H.CENTER)	500 Ω B			
	RESISTOR						
	R1445-46	QRG019J-561S	OM R	560 Ω	1W	J	*
	R1448	QRX019J-2R7S	MF R	2.7 Ω	1W	J	*
	R1449	QRX019J-2R2S	MF R	2.2 Ω	1W	J	*
	R1457	QRG019J-821S	OM R	820 Ω	1W	J	*
	R1469	QRG039J-390A	OM R	39 Ω	3W	J	*
	R1470	QRG029J-561	OM R	560 Ω	2W	J	*
	R1471	QRG029J-471	OM R	470 Ω	2W	J	*
	R1511	QRG019J-331S	OM R	330 Ω	1W	J	*
	R1515	QRG029J-150	OM R	15 Ω	2W	J	*
	R1518	QRG029J-101A	OM R	100 Ω	2W	J	*
	R1521	QRD123J-220SX	C R	22 Ω	1/2W	J	*
	R1522	QRG029J-223	OM R	22kΩ	2W	J	*
	R1523	QRG019J-102S	OM R	1kΩ	1W	J	*
	R1524	QRF074K-3R3	UNF R	3.3 Ω	7W	K	*
	R1525	QRG019J-121S	OM R	120 Ω	1W	J	*
	R1526	QRD129J-390S	C R	39 Ω	1/2W	J	*
	R1527	QRG029J-101A	OM R	100 Ω	2W	J	*
	R1546	QRG029J-101A	OM R	100 Ω	2W	J	*
	R1561	QRV141F-6341AY	MF R	6.34kΩ	1/4W	F	*
	R1562	QRV141F-3901AY	MF R	3.9kΩ	1/4W	F	*
	R1709	QRB089J-472	NET R	4700 Ω	1/10W	J	*
	R1713	QRB089J-472	NET R	4700 Ω	1/10W	J	*
	R1736	QRB065J-682	NET R	6800 Ω		J	*
	CAPACITOR						
	C1009	QCZ0118-104M	C CAP.	0.1μF	25V	Z	*
	C1013	QCZ0118-104M	C CAP.	0.1μF	25V	Z	*
	C1205	QCZ0118-104M	C CAP.	0.1μF	25V	Z	*
	C1209	QFV71HJ-104MZ	TF CAP.	0.1μF	50V	J	*
	C1212	QFLC1HJ-103MZ	M CAP.	0.01μF	50V	J	*
	C1214	QEN61HM-105Z	BP E CAP.	1μF	50V	M	*
	C1301	QFLC1HJ-103MZ	M CAP.	0.01μF	50V	J	*
	C1303	QFV71HJ-563MZ	TF CAP.	0.056μF	50V	J	*
	C1304	QFLC1HJ-103MZ	M CAP.	0.01μF	50V	J	*
	C1306-08	QFLC1HJ-103MZ	M CAP.	0.01μF	50V	J	*
	C1312	QFLC1HJ-103MZ	M CAP.	0.01μF	50V	J	*
	C1313	QCZ0118-104M	C CAP.	0.1μF	25V	Z	*
	C1320	QFV71HJ-104MZ	TF CAP.	0.1μF	50V	J	*
	C1322	QFV71HJ-104MZ	TF CAP.	0.1μF	50V	J	*
	C1324	QFLC1HJ-103MZ	M CAP.	0.01μF	50V	J	*
	C1325	QFV71HJ-563MZ	TF CAP.	0.056μF	50V	J	*
	C1327	QFLC1HJ-103MZ	M CAP.	0.01μF	50V	J	*
	C1328	QEN61HM-225Z	BP E CAP.	2.2μF	50V	M	*
	C1329	QFV71HJ-563MZ	TF CAP.	0.056μF	50V	J	*
	C1330	QCT25CH-330Z	C CAP.	33pF	50V	J	*
	C1331	QCT25CH-220Z	C CAP.	22pF	50V	J	*
	C1332	QCT25CH-120Z	C CAP.	12pF	50V	J	*
	C1333	QCT25CH-390Z	C CAP.	39pF	50V	J	*
	C1335	QFLC1HJ-103MZ	M CAP.	0.01μF	50V	J	*
	C1441	QFLC1HJ-103MZ	M CAP.	0.01μF	50V	J	*
	C1443	QEHB1VM-108M	E CAP.	1000μF	35V	M	*
	C1444	QEHC1VM-107MZ	E CAP.	100μF	35V	M	*
	C1445	QFLC2AJ-563MZ	M CAP.	0.056μF	100V	J	*
	C1448	QEHC1HM-475MZ	E CAP.	4.7μF	50V	M	*
	C1450	QFLC2AJ-393MZ	M CAP.	0.039μF	100V	J	*

⚠	Symbol No.	Part No.	Part Name	Description			Local
	CAPACITOR						
	C1461	QFLC1HJ-223MZ	M CAP.	0.022 µF	50V	J	*
	C1462	QEM61HK-225MZ	E CAP.	2.2 µF	50V	K	*
	C1463	QFV71HJ-684MZ	TF CAP.	0.68 µF	50V	J	*
	C1465	QFLC1HJ-473MZ	M CAP.	0.047 µF	50V	J	*
	C1468-69	QEM61HK-475MZ	E CAP.	4.7 µF	50V	K	*
	C1501	QCZ0118-104M	C CAP.	0.1 µF	25V	Z	*
	C1503	QFV71HJ-104MZ	TF CAP.	0.1 µF	50V	J	*
	C1504	QFLC1HJ-472MZ	M CAP.	4700 p F	50V	J	*
	C1509	QFLC1HJ-123MZ	M CAP.	0.012 µF	50V	J	*
	C1512	QFLC2AJ-123MZ	M CAP.	0.012 µF	100V	J	*
	C1513	QFLC1HJ-393MZ	M CAP.	0.039 µF	50V	J	*
	C1514	QEM61HK-105MZ	E CAP.	1 µF	50V	K	*
⚠	C1522	QFZ0117-1001S	MPP CAP.	1000 µF	2000V	±2.5%	
⚠	C1523	QFZ0112-1382S	MPP CAP.	13800 µF	2000V	±3%	
⚠	C1524	QFLC2AJ-104MZ	M CAP.	0.1 µF	100V	J	*
	C1525	QFP32GJ-123M	PP CAP.	0.012 µF	400V	J	*
	C1526	QFZ0118-224S	MPP CAP.	0.22 µF	25V	Z	
	C1527	QFZ0118-393S	MPP CAP.	0.039 µF	25V	Z	
	C1528	QFZ0119-304S	MPP CAP.	0.3 µF	25V	Z	*
	C1533	QFP32GJ-123M	PP CAP.	0.012 µF	400V	J	*
	C1542	QEHB1VM-108M	E CAP.	1000 µF	35V	M	*
	C1563	QFV71HJ-394MZ	TF CAP.	0.39 µF	50V	J	*
	C1568	QFLC1HJ-103MZ	M CAP.	0.01 µF	50V	J	*
	C1593	QCT25CH-151Z	C CAP.	150 p F	50V	J	*
	C1594	QFV71HJ-104MZ	TF CAP.	0.1 µF	50V	J	*
	C1702	QCZ0118-104M	C CAP.	0.1 µF	25V	Z	*
	C1705	QCT25CH-220Z	C CAP.	22 p F	50V	J	*
	C1706	QCT25CH-820Z	C CAP.	82 p F	50V	J	*
	C1707	QEB61HM-104MZ	E CAP.	0.1 µF	50V	M	*
	C1708	QFLC1HJ-333MZ	M CAP.	0.033 µF	50V	J	*
	C1711	QFLC1HJ-563MZ	M CAP.	0.056 µF	50V	J	*
	C1712	QFLC1HJ-103MZ	M CAP.	0.01 µF	50V	J	*
	C1713	QCT25CH-100Z	C CAP.	10 p F	50V	J	*
	C1714	QCT25CH-120Z	C CAP.	12 p F	50V	J	*
	C1715	QCZ0118-104M	C CAP.	0.1 µF	25V	Z	*
	C1717	QFLC1HJ-103MZ	M CAP.	0.01 µF	50V	J	*
	C1720	QFLC1HJ-103MZ	M CAP.	0.01 µF	50V	J	*
	C1722	QCZ0118-104M	C CAP.	0.1 µF	25V	Z	*
	C1761	QCT25CH-270Z	C CAP.	27 p F	50V	J	*
	C1763	QFLC1HJ-682MZ	M CAP.	6800 p F	50V	J	*
	C1765	QCZ0118-104M	C CAP.	0.1 µF	25V	Z	*
	C1766	QFV71HJ-474MZ	TF CAP.	0.47 µF	50V	J	*
	C1854-56	QFV71HJ-474MZ	TF CAP.	0.47 µF	50V	J	*
	TRANSFORMER						
	T1301	CELT016-009J1	DL.PHASE TRANSF.				*
	T1501	CE41970-001J1	DRIVE TRANSF				*
	T1521	CE40381-00A	SIDE PIN TRANSF				
⚠	T1541	CE42295-001J1	H V MODULE				*
	COIL						
	L1001-04	CELP026-8R2Z	PEAKING COIL	8.2 µH			*
	L1201	CELP027-220Z	PEAKING COIL	22 µH			*
	L1301	CELP026-8R2Z	PEAKING COIL	8.2 µH			*
	L1521	CELC901-056J6	HEATER CHOKE				*
	L1522	CELC009-003	CHOKE COIL				*
	L1523	CE41883-001J1	LINEARITY COIL				
	L1524	CELC051-821	CHOKE COIL	820 µH			
	L1541	CELC901-048J6	HEATER CHOKE				*
	L1542	CELP002-272Z	PEAKING COIL	2700 µH			*
	L1701	CELP027-120Z	PEAKING COIL	12 µH			*
	L1702	CELP026-470Z	PEAKING COIL	47 µH			*
	L1703	CELP026-2R2Z	PEAKING COIL	2.2 µH			*
	L1761	CELP026-4R7Z	PEAKING COIL	4.7 µH			*
	DIODE						
	D1001	MA4330(M)-T2	ZENER DIODE				*

⚠ Symbol No.	Part No.	Part Name	Description	Local
D I O D E				
D1002	MA700-T2	SI.DIODE		*
D1201-02	1SS133-T2	SI.DIODE		*
D1441	RD3.0ES(B2)-T2	ZENER DIODE		
D1442	1N4002ID-T3	SI.DIODE		*
D1443	MA4120(M)-T2	ZENER DIODE		*
D1461	1N4002ID-T3	SI.DIODE		*
D1462	RD12E(B1)-T2	ZENER DIODE		
D1463-64	1SS133-T2	SI.DIODE		*
D1465	MA700-T2	SI.DIODE		*
D1501	MA4091(M)-T2	ZENER DIODE		*
D1502	MA4120(M)-T2	ZENER DIODE		*
D1503	BAV21-T2	SI.DIODE		*
D1521	BY228-20	SI.DIODE		*
D1522-23	BYW95B-20	SI.DIODE		*
D1524	BYD33G-T3	SI.DIODE		*
D1525	RD27F(B1)-T3	ZENER DIODE		
D1541	BYD33G-T3	SI.DIODE		*
D1542-45	BYW95B-20	SI.DIODE		*
D1546	BYD33D-T3	SI.DIODE		*
D1547	1SS133-T2	SI.DIODE		*
D1548	RD4.3E(B2)-T2	ZENER DIODE		
D1550-51	1SS133-T2	SI.DIODE		*
D1552	1N4003-T2	SI.DIODE		*
D1553	MA4068(N)C1-T2	ZENER DIODE		*
D1591	RD3.6ES(B1)-T2	ZENER DIODE		
D1592	1SS133-T2	SI.DIODE		*
D1593	1SS252-T2	SI.DIODE		*
D1701-02	1SS146-T2	SI.DIODE		*
D1703-04	MA700-T2	SI.DIODE		*
D1705-14	1SS133-T2	SI.DIODE		*
D1716	1SS146-T2	SI.DIODE		*
D1717	1SS133-T2	SI.DIODE		*
D1732	1SS133-T2	SI.DIODE		*
D1734	1SS133-T2	SI.DIODE		*
D1761	1SS146-T2	SI.DIODE		*
D1762	RD16ES(B3)-T2	ZENER DIODE		
D1763	1SS133-T2	SI.DIODE		*
D1851-53	1SS133-T2	SI.DIODE		*
D1854-56	RD13JS(B)-T2	ZENER DIODE		
D1857	1SS133-T2	SI.DIODE		*
T R A N S I S T O R				
Q1004	DTC144ES-T	DIGI TRANSISTOR		*
Q1201-03	2PC1815(YG)-T	SI.TRANSISTOR		*
Q1204	2PA1015(YG)-T	SI.TRANSISTOR		*
Q1205	DTC144ES-T	DIGI TRANSISTOR		*
Q1206	2PA1015(YG)-T	SI.TRANSISTOR		*
Q1305	DTC144ES-T	DIGI TRANSISTOR		*
Q1306	2PC1815(YG)-T	SI.TRANSISTOR		*
Q1307-08	DTA144ES-T	DIGI.TRANSISTOR		*
Q1401	DTC144ES-T	DIGI TRANSISTOR		*
Q1402-03	2PA1015(YG)-T	SI.TRANSISTOR		*
Q1461	2PC1815(YG)-T	SI.TRANSISTOR		*
Q1462	2SD1408(OY)	SI.TRANSISTOR		*
Q1463	DTC144ES-T	DIGI TRANSISTOR		*
Q1501	2SC3669(OY)-T	SI.TRANSISTOR		*
Q1502	DTC144ES-T	DIGI TRANSISTOR		*
Q1503-04	2PA1015(YG)-T	SI.TRANSISTOR		*
⚠ Q1521	BU508AFI	SI.TRANSISTOR		*
Q1541	2SD1266(P)	SI.TRANSISTOR		*
Q1701	DTC144ES-T	DIGI TRANSISTOR		*
Q1702-03	2PA1015(YG)-T	SI.TRANSISTOR		*
Q1761-62	2PC1815(YG)-T	SI.TRANSISTOR		*
Q1763-65	DTC144ES-T	DIGI TRANSISTOR		*
Q1851-52	2PC1815(YG)-T	SI.TRANSISTOR		*

For Service Manuals Contact
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⚠	Symbol No.	Part No.	Part Name	Description			Local
	T R A N S I S T O R						
	Q1901	2PC1815(YG)-T	SI.TRANSISTOR				*
	Q1902	2SA966(OY)-T	SI.TRANSISTOR				*
	I C						
	IC1201	TA8759BN	I.C(MONO-ANA)				*
	IC1441	TDA3654	I.C.(MONO-ANA)				*
	IC1461	TA8859P	I.C.				*
	IC1701	M37204M8-A44SP	I.C.				*
	IC1702	MN1280-Q	I.C(DIGI-MOS)				*
	IC1703	TC4066BP	I.C(DIGI-MOS)				*
	IC1704	CAT35C104HP	I.C(MEMORY-OTH)				
	IC1705	UPD6326C	I.C(DIGI-MOS)				
	IC1706	TA78M05P	I.C.				*
	IC1707	ST24C01B1	I.C(EP-ROM)				*
	O T H E R S						
		————————	PIF PWB ASSY	(SMX0F901A-U2)			
		————————	VNR&RGB PWB ASSY	(SMX0N901A-U2)			
		CM46611-001-E	TRANSF.HOLDER				*
	DL1301	CE42038-001J1	DELAY LINE				*
⚠	FR1466	QRZ0054-820M	F R	82 Ω	1/4W	J	*
⚠	FR1541	QRH017J-100M	F R	10 Ω	1W	J	*
⚠	FR1542	QRH027J-1R8M	F R	1.8 Ω	2W	J	*
⚠	FR1543	QRH027J-1R0M	F R	1 Ω	2W	J	*
⚠	FR1544	QRH027J-1R0M	F R	1 Ω	2W	J	*
⚠	FR1545	QRH017J-1R0M	F R	1 Ω	1W	J	*
⚠	FR1547	QRZ0054-220M	F R	22 Ω	1/4W	J	*
⚠	FR1560	QRZ0054-4R7M	F R	4.7 Ω	1/4W	J	*
⚠	FR1743	QRZ0054-120M	F R	12 Ω	1/4W	J	*
	K1501	CE41433-001	BEADS CORE				
	K1521	CE41169-002J2	BEADS CORE				*
	K1801	CE41433-001	BEADS CORE				
	S1401	QSL6A13-C01	LEVER SWITCH	SERVICE SW			*
	S1441	QSL6A13-C01	LEVER SWITCH	V.CENTER SW			*
	TU1001	CEEM330-A01-G	UHF TUNER				*
	X1301	CE40749-001J1	CRYSTAL				*
	X1302	CE40668-001	CRYSTAL				*
	X1501	CSB503F30-T2	C RESONATOR				*
	X1701	CE41887-001J1	CRYSTAL				*

MAIN PW BOARD ASS'Y (SMX-1904A-U2) [AV-28S1EK]

⚠ Symbol No.	Part No.	Part Name	Description			Local
VARIABLE RESISTOR						
R1012	QVPA603-223AZ	V R(NOISE)	22k Ω	B		
R1207	QVPE611-103HZ	V R(CONT.)	10k Ω	B		
R1216	QVPE611-103HZ	V R(BRIGHT)	10k Ω	B		
R1305	QVPE611-303HZ	V R(TINT)	30k Ω	B		
R1309	QVPE611-102HZ	V R(DL GAIN)	1k Ω	B		
R1315	QVPE611-103HZ	V R(PAL-C)	10k Ω	B		
R1504	QVPE611-501HZ	V R(H.CENTER)	500 Ω	B		
RESISTOR						
R1445-46	QRG019J-561S	OM R	560 Ω	1W	J	*
R1448	QRX019J-2R7S	MF R	2.7 Ω	1W	J	*
R1449	QRX019J-2R2S	MF R	2.2 Ω	1W	J	*
R1457	QRG019J-821S	OM R	820 Ω	1W	J	*
R1469	QRG039J-390A	OM R	39 Ω	3W	J	*
R1470	QRG029J-561	OM R	560 Ω	2W	J	*
R1471	QRG029J-471	OM R	470 Ω	2W	J	*
R1511	QRG019J-331S	OM R	330 Ω	1W	J	*
R1515	QRG029J-150	OM R	15 Ω	2W	J	*
R1518	QRG029J-101A	OM R	100 Ω	2W	J	*
R1521	QRD123J-220SX	C R	22 Ω	1/2W	J	*
R1522	QRG029J-223	OM R	22k Ω	2W	J	*
R1523	QRG019J-102S	OM R	1k Ω	1W	J	*
R1524	QRF074K-3R3	UNF R	3.3 Ω	7W	K	*
R1525	QRG019J-121S	OM R	120 Ω	1W	J	*
R1526	QRD129J-390S	C R	39 Ω	1/2W	J	*
R1527	QRG029J-101A	OM R	100 Ω	2W	J	*
R1546	QRG029J-101A	OM R	100 Ω	2W	J	*
R1561	QRV141F-6341AY	MF R	6.34k Ω	1/4W	F	*
R1562	QRV141F-3901AY	MF R	3.9k Ω	1/4W	F	*
R1709	QRB089J-472	NET R	4700 Ω	1/10W	J	*
R1713	QRB089J-472	NET R	4700 Ω	1/10W	J	*
R1736	QRB065J-682	NET R	6800 Ω		J	*
CAPACITOR						
C1009	QCZ0118-104M	C CAP.	0.1 µF	25V	Z	*
C1013	QCZ0118-104M	C CAP.	0.1 µF	25V	Z	*
C1205	QCZ0118-104M	C CAP.	0.1 µF	25V	Z	*
C1209	QFV71HJ-104MZ	TF CAP.	0.1 µF	50V	J	*
C1212	QFLC1HJ-103MZ	M CAP.	0.01 µF	50V	J	*
C1214	QEN61HM-105Z	BP E CAP.	1 µF	50V	M	*
C1301	QFLC1HJ-103MZ	M CAP.	0.01 µF	50V	J	*
C1303	QFV71HJ-273MZ	TF CAP.	0.027 µF	50V	J	*
C1304	QFLC1HJ-103MZ	M CAP.	0.01 µF	50V	J	*
C1306-08	QFLC1HJ-103MZ	M CAP.	0.01 µF	50V	J	*
C1312	QFLC1HJ-103MZ	M CAP.	0.01 µF	50V	J	*
C1313	QCZ0118-104M	C CAP.	0.1 µF	25V	Z	*
C1320	QFV71HJ-104MZ	TF CAP.	0.1 µF	50V	J	*
C1322	QFV71HJ-104MZ	TF CAP.	0.1 µF	50V	J	*
C1324	QFLC1HJ-103MZ	M CAP.	0.01 µF	50V	J	*
C1325	QFV71HJ-563MZ	TF CAP.	0.056 µF	50V	J	*
C1327	QFLC1HJ-103MZ	M CAP.	0.01 µF	50V	J	*
C1328	QEN61HM-225Z	BP E CAP.	2.2 µF	50V	M	*
C1329	QFV71HJ-563MZ	TF CAP.	0.056 µF	50V	J	*
C1330	QCT25CH-330Z	C CAP.	33 pF	50V	J	*
C1331	QCT25CH-220Z	C CAP.	22 pF	50V	J	*
C1332	QCT25CH-120Z	C CAP.	12 pF	50V	J	*
C1333	QCT25CH-390Z	C CAP.	39 pF	50V	J	*
C1335	QFLC1HJ-103MZ	M CAP.	0.01 µF	50V	J	*
C1441	QFLC1HJ-103MZ	M CAP.	0.01 µF	50V	J	*
C1443	QEHB1VM-108M	E CAP.	1000 µF	35V	M	*
C1444	QEHC1VM-107MZ	E CAP.	100 µF	35V	M	*
C1445	QFLC2AJ-563MZ	M CAP.	0.056 µF	100V	J	*
C1448	QEHC1HM-475MZ	E CAP.	4.7 µF	50V	M	*
C1450	QFLC2AJ-393MZ	M CAP.	0.039 µF	100V	J	*
C1461	QFLC1HJ-223MZ	M CAP.	0.022 µF	50V	J	*
C1462	QEM61HK-225MZ	E CAP.	2.2 µF	50V	K	*

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⚠	Symbol No.	Part No.	Part Name	Description			Local
	CAPACITOR						
	C1463	QFV71HJ-684MZ	TF CAP.	0.68 µF	50V	J	*
	C1465	QFLC1HJ-473MZ	M CAP.	0.047 µF	50V	J	*
	C1468-69	QEM61HK-475MZ	E CAP.	4.7 µF	50V	K	*
	C1501	QCZ0118-104M	C CAP.	0.1 µF	25V	Z	*
	C1503	QFV71HJ-104MZ	TF CAP.	0.1 µF	50V	J	*
	C1504	QFLC1HJ-472MZ	M CAP.	4700 pF	50V	J	*
	C1509	QFV71HJ-123MZ	TF CAP.	0.012 µF	50V	J	*
	C1512	QFLC2AJ-123MZ	M CAP.	0.012 µF	100V	J	*
	C1513	QFLC1HJ-393MZ	M CAP.	0.039 µF	50V	J	*
	C1514	QEM61HK-105MZ	E CAP.	1 µF	50V	K	*
⚠	C1522	QFZ0117-1001S	MPP CAP.	1000 µF	2000V	±2.5%	
⚠	C1523	QFZ0112-1382S	MPP CAP.	13800 µF	2000V	±3%	
⚠	C1524	QFLC2AJ-104MZ	M CAP.	0.1 µF	100V	J	*
	C1525	QFP32GJ-123M	PP CAP.	0.012 µF	400V	J	*
	C1526	QFZ0118-224S	MPP CAP.	0.22 µF	25V	Z	
	C1527	QFZ0118-393S	MPP CAP.	0.039 µF	25V	Z	
	C1528	QFZ0119-304S	MPP CAP.	0.3 µF	25V	Z	
	C1533	QFP32GJ-123M	PP CAP.	0.012 µF	400V	J	*
	C1542	QEHB1VM-108M	E CAP.	1000 µF	35V	M	*
	C1563	QFV71HJ-394MZ	TF CAP.	0.39 µF	50V	J	*
	C1568	QFLC1HJ-103MZ	M CAP.	0.01 µF	50V	J	*
	C1593	QCT25CH-151Z	C CAP.	150 pF	50V	J	*
	C1594	QFV71HJ-104MZ	TF CAP.	0.1 µF	50V	J	*
	C1702	QCZ0118-104M	C CAP.	0.1 µF	25V	Z	*
	C1705	QCT25CH-220Z	C CAP.	22 pF	50V	J	*
	C1706	QCT25CH-820Z	C CAP.	82 pF	50V	J	*
	C1707	QEB61HM-104MZ	E CAP.	0.1 µF	50V	M	*
	C1708	QFLC1HJ-333MZ	M CAP.	0.033 µF	50V	J	*
	C1711	QFLC1HJ-563MZ	M CAP.	0.056 µF	50V	J	*
	C1712	QFLC1HJ-103MZ	M CAP.	0.01 µF	50V	J	*
	C1713	QCT25CH-100Z	C CAP.	10 pF	50V	J	*
	C1714	QCT25CH-120Z	C CAP.	12 pF	50V	J	*
	C1715	QCZ0118-104M	C CAP.	0.1 µF	25V	Z	*
	C1717	QFLC1HJ-103MZ	M CAP.	0.01 µF	50V	J	*
	C1720	QFLC1HJ-103MZ	M CAP.	0.01 µF	50V	J	*
	C1722	QCZ0118-104M	C CAP.	0.1 µF	25V	Z	*
	C1761	QCT25CH-270Z	C CAP.	27 pF	50V	J	*
	C1763	QFLC1HJ-682MZ	M CAP.	6800 pF	50V	J	*
	C1765	QCZ0118-104M	C CAP.	0.1 µF	25V	Z	*
	C1766	QFV71HJ-474MZ	TF CAP.	0.47 µF	50V	J	*
	C1854-56	QFV71HJ-474MZ	TF CAP.	0.47 µF	50V	J	*
	TRANSFORMER						
	T1301	CELT016-009J1	DL.PHASE TRANSF.				*
	T1501	CE41970-001	DRIVE TRANSF.				
	T1521	CE40381-00A	SIDE PIN TRANSF				
⚠	T1541	CE42295-001J1	H V MODULE				*
	COIL						
	L1001-04	CELP026-8R2ZJ2	PEAKING COIL	8.2 µH			*
	L1201	CELP027-220Z	PEAKING COIL	22 µH			*
	L1301	CELP026-8R2ZJ2	PEAKING COIL	8.2 µH			*
	L1521	CJ30030-056	HEATER CHOKE				
	L1522	CELC009-003	CHOKE COIL				*
	L1523	CE41883-001J1	LINEARITY COIL				*
	L1524	CELC051-821	CHOKE COIL	820 µH			
	L1541	CJ30030-048	HEATER CHOKE				
	L1542	CELP002-272Z	PEAKING COIL	2700 µH			*
	L1701	CELP027-120Z	PEAKING COIL	12 µH			*
	L1702	CELP026-470ZJ2	PEAKING COIL	47 µH			*
	L1703	CELP026-2R2Z	PEAKING COIL	2.2 µH			*
	L1761	CELP026-4R7ZJ2	PEAKING COIL	4.7 µH			*
	DIODE						
	D1001	MA4330(M)-T2	ZENER DIODE				*

⚠ Symbol No.	Part No.	Part Name	Description	Local
D I O D E				
D1002	MA700-T2	SI.DIODE		*
D1201-02	1SS133-T2	SI.DIODE		*
D1441	RD3.0ES(B2)-T2	ZENER DIODE		
D1442	1N4002ID-T3	SI.DIODE		*
D1443	MA4120(M)-T2	ZENER DIODE		*
D1461	1N4002ID-T3	SI.DIODE		*
D1462	RD12E(B1)-T2	ZENER DIODE		
D1463-64	1SS133-T2	SI.DIODE		*
D1465	MA700-T2	SI.DIODE		*
D1501	MA4091(M)-T2	ZENER DIODE		*
D1502	MA4120(M)-T2	ZENER DIODE		*
D1503	BAV21-T2	SI.DIODE		*
D1521	BY228-20	SI.DIODE		*
D1522-23	BYW95B-20	SI.DIODE		*
D1524	BYD33G-T3	SI.DIODE		*
D1525	RD27F(B1)-T3	ZENER DIODE		
D1541	BYD33G-T3	SI.DIODE		*
D1542-45	BYW95B-20	SI.DIODE		*
D1546	BYD33D-T3	SI.DIODE		*
D1547	1SS133-T2	SI.DIODE		*
D1548	RD4.3E(B2)-T2	ZENER DIODE		
D1550-51	1SS133-T2	SI.DIODE		*
D1552	1N4003-T2	SI.DIODE		
D1553	MA4068(N)C1-T2	ZENER DIODE		*
D1591	RD3.6ES(B1)-T2	ZENER DIODE		
D1592	1SS133-T2	SI.DIODE		*
D1593	1SS252-T2	SI.DIODE		*
D1701-02	1SS146-T2	SI.DIODE		*
D1703-04	MA700-T2	SI.DIODE		*
D1705-14	1SS133-T2	SI.DIODE		*
D1716	1SS146-T2	SI.DIODE		*
D1717	1SS133-T2	SI.DIODE		*
D1732	1SS133-T2	SI.DIODE		*
D1734	1SS133-T2	SI.DIODE		*
D1761	1SS146-T2	SI.DIODE		*
D1762	RD16ES(B3)-T2	ZENER DIODE		
D1763	1SS133-T2	SI.DIODE		*
D1851-53	1SS133-T2	SI.DIODE		*
D1854-56	RD13JS(B)-T2	ZENER DIODE		
D1857	1SS133-T2	SI.DIODE		*
T R A N S I S T O R				
Q1001	2SC4502-T	SI.TRANSISTOR		*
Q1004	DTC144ES-T	DIGI TRANSISTOR		*
Q1201-03	2PC1815(YG)-T	SI.TRANSISTOR		*
Q1204	2PA1015(YG)-T	SI.TRANSISTOR		*
Q1205	DTC144ES-T	DIGI TRANSISTOR		*
Q1206	2PA1015(YG)-T	SI.TRANSISTOR		*
Q1305	DTC144ES-T	DIGI TRANSISTOR		*
Q1306	2PC1815(YG)-T	SI.TRANSISTOR		*
Q1307-08	DTA144ES-T	DIGI.TRANSISTOR		*
Q1401	DTC144ES-T	DIGI TRANSISTOR		*
Q1402-03	2PA1015(YG)-T	SI.TRANSISTOR		*
Q1461	2PC1815(YG)-T	SI.TRANSISTOR		*
Q1462	2SD1408(OY)	SI.TRANSISTOR		*
Q1463	DTC144ES-T	DIGI TRANSISTOR		*
Q1501	2SC3669(OY)-T	SI.TRANSISTOR		*
Q1502	DTC144ES-T	DIGI TRANSISTOR		*
Q1503-04	2PA1015(YG)-T	SI.TRANSISTOR		*
⚠ Q1521	BU508AFI	SI.TRANSISTOR		*
Q1541	2SD1266(P)	SI.TRANSISTOR		*
Q1701	DTC144ES-T	DIGI TRANSISTOR		*
Q1702-03	2PA1015(YG)-T	SI.TRANSISTOR		*
Q1761-62	2PC1815(YG)-T	SI.TRANSISTOR		*
Q1763-65	DTC144ES-T	DIGI TRANSISTOR		*

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⚠	Symbol No.	Part No.	Part Name	Description	Local
	T R A N S I S T O R				
	Q1851-52	2PC1815(YG)-T	SI.TRANSISTOR		*
	Q1901	2PC1815(YG)-T	SI.TRANSISTOR		*
	Q1902	2SA966(OY)-T	SI.TRANSISTOR		*
	I C				
	IC1201	TA8759BN	I.C(MONO-ANA)		*
	IC1441	TDA3654	I.C(MONO-ANA)		*
	IC1461	TA8859P	I.C.		*
	IC1701	M37204M8-A44SP	I.C.		*
	IC1702	MN1280-Q	I.C(DIGI-MOS)		*
	IC1703	TC4066BP	I.C(DIGI-MOS)		*
	IC1704	CAT35C104HP	I.C(MEMORY-OTH)		
	IC1705	UPD6326C	I.C(DIGI-MOS)		
	IC1706	TA78M05P	I.C.		*
	IC1707	24C01A/P	I.C(EP-ROM)		
	O T H E R S				
		————	PIF PWB ASSY	(SMX0F901A-U2)	
		————	VNR&RGB PWB ASSY	(SMX0N901A-U2)	
	DL1301	CE42038-001J1	DELAY LINE		*
⚠	FR1466	QRZ0054-820M	F R	82 Ω 1/4W J	*
⚠	FR1541	QRH017J-100M	F R	10 Ω 1W J	*
⚠	FR1542	QRH027J-1R8M	F R	1.8 Ω 2W J	*
⚠	FR1543	QRH027J-1R0M	F R	1 Ω 2W J	*
⚠	FR1544	QRH027J-1R0M	F R	1 Ω 2W J	*
⚠	FR1545	QRH017J-1R0M	F R	1 Ω 1W J	*
⚠	FR1547	QRZ0054-220M	F R	22 Ω 1/4W J	*
⚠	FR1560	QRZ0054-4R7M	F R	4.7 Ω 1/4W J	*
⚠	FR1743	QRZ0054-120M	F R	12 Ω 1/4W J	*
	K1501	CE41433-001	BEADS CORE		
	K1521	CE41169-002	PEAKING COIL		
	K1801	CE41433-001	BEADS CORE		
	S1401	QSL6A13-C01J2	LEVER SWITCH	SERVICE SW	*
	S1441	QSL6A13-C01	LEVER SWITCH	V.CENTER SW	*
	TU1001	CEEM330-A01-G	UHF TUNER		*
	X1301	CE40749-001J1	CRYSTAL		*
	X1302	CE40668-001	CRYSTAL		*
	X1501	CSB503F30-T2	C RESONATOR		*
	X1701	CE41887-001J1	CRYSTAL		*

POWER PW BOARD ASS'Y (SMX-2902A-U2)

⚠	Symbol No.	Part No.	Part Name	Description			Local
	VARIABLE RESISTOR						
	R2032	QVPA603-332AZ	V R(B1 ADJ.)	3.3kΩ	B		
	RESISTOR						
	R2002	QRF104K-3R9	UNF R	3.9 Ω	10W	K	*
	R2003	QRG039J-183	OM R	18kΩ	3W	J	*
	R2005	QRF104J-221	UNF R	220 Ω	10W	J	*
	R2006	QRD123J-101SX	C R	100 Ω	1/2W	J	*
	R2007	QRM055K-R15	MP R	0.15 Ω	5W	K	
	R2009	QRX019J-2R2S	MF R	2.2 Ω	1W	J	*
	R2010	QRX029J-6R8	MF R	6.8 Ω	2W	J	*
	R2011	QRD123J-180SX	C R	18 Ω	1/2W	J	*
	R2016	QRV141F-5602AY	MF R	56kΩ	1/4W	F	*
	R2017	QRV141F-1503AY	MF R	150kΩ	1/4W	F	*
	R2031	QRD123J-124SX	C R	120kΩ	1/2W	J	*
	R2041	QRG039J-153	OM R	15kΩ	3W	J	*
	R2042	QRG029J-102	OM R	1kΩ	2W	J	*
	R2044-45	QRG039J-181	OM R	180 Ω	3W	J	*
	R2046	QRX039J-R56A	MF R	0.56 Ω	3W	J	*
	R2049	QRD123J-331SX	C R	330 Ω	1/2W	J	*
⚠	R2051	QRZ0057-825	C R	8.2MΩ	1W	J	*
	CAPACITOR						
⚠	C2002	QFZ9036-104M	MF CAP.	0.1μF	AC250V	M	*
⚠	C2006	QFZ9036-473M	MF CAP.	0.047μF	AC250V	M	*
	C2007-10	QCZ9034-472A	C CAP.	4700 p	AC125V	P	*
	C2011	QEZ0167-227J8	E CAP.	220 μF	385V	±20%	*
	C2013	QFZ0117-1501S	MPP CAP.	1500 p F	2000V	±2.5%	
	C2015	QEHC1EM-477MZ	E CAP.	470 μF	25V	M	*
	C2017	QEM51VM-476M	E CAP.	47 μF	35V	M	*
	C2018-19	QFLC1HJ-393MZ	M CAP.	0.039 μF	50V	J	*
	C2020	QFV71HJ-394MZ	TF CAP.	0.39 μF	50V	J	*
	C2021	QFP31HG-102S	PP CAP.	1000 p F	50V	G	
	C2026	QFLC1HJ-332MZ	M CAP.	3300 p F	50V	J	*
	C2031-32	QEH52CM-107M	E CAP.	100 μF	160V	M	*
	C2033	QCZ0128-332A	C CAP.	3300 p F	500V	K	*
	C2034	QCZ0122-122A	C CAP.	1200 p F	2000V	K	*
	C2035	QEHC1HM-475MZ	E CAP.	4.7 μF	50V	M	*
	C2037	QFLC1HJ-123MZ	M CAP.	0.012 μF	50V	J	*
	C2038	QEHB1EM-108M	E CAP.	1000 μF	25V	M	*
	C2040	QEHB1VM-338M	E CAP.	3300 μF	35V	M	*
	C2042	QEN61CM-106Z	BP E CAP.	10 μF	16V	M	*
	C2044	QCZ0128-332A	C CAP.	3300 p F	500V	K	*
⚠	C2051	QCZ9036-472M	C CAP.	4700 p	AC125V	M	*
⚠	C2052	QCZ9036-472M	C CAP.	4700 p	AC125V	M	*
⚠	C2053	QCZ9036-102M	C CAP.	1000 p	AC125V	K	*
⚠	C2054	QCZ9036-102M	C CAP.	1000 p	AC125V	K	*
⚠	C2055	QCZ9036-102M	C CAP.	1000 p	AC125V	K	*
	TRANSFORMER						
⚠	T2001	CE42386-001J1	S.M.TRANSF				*
	COIL						
	L2001	CELC005-2R5	CHOKE COIL	2.5 μH			
	L2031	CJ30030-046	HEATER CHOKE				
	L2033	CELC002-470	CHOKE COIL	47 μH			
	L2034-35	CELC026-100	CHOKE COIL	10 μH			*
	DIODE						
⚠	D2001	D3SB60	BRIDGE DIODE				
	D2002	BYD33M-T3	SI.DIODE				*
	D2003	RD3.0F(B2)-T3	ZENER DIODE				
	D2006	BYD33D-T3	SI.DIODE				*
	D2031	BY229-600	SI.DIODE				*
	D2032	RD6.2ES(B2)-T2	ZENER DIODE				
	D2033-34	BYV28-200-20	SI.DIODE				*
	D2036	BYD33M-T3	SI.DIODE				

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⚠	Symbol No.	Part No.	Part Name	Description	Local
	TRANSISTOR				
	Q2001	SGSIF444	SI.TRANSISTOR		*
	Q2002	2PC1815(YG)-T	SI.TRANSISTOR		*
	Q2031-32	2PC1815(YG)-T	SI.TRANSISTOR		*
	Q2033	2SC2229(OY)-T	SI TRANSISTOR		*
	IC				
	IC2001	TEA2261	I.C.		*
⚠	IC2002	CNY17F-C1	I.C(PH.COUPLER)		*
	OTHERS				
		CM46611-001-E	TRANSF.HOLDER		*
⚠	LF2001	CE41890-001J2	LINE FILTER		*
⚠	TH2001	CE41884-001J1	W-P.THERMISTOR		*

CRT SOCKET PW BOARD ASS'Y (SMX-3901A-U2)

⚠	Symbol No.	Part No.	Part Name	Description	Local
	VARIABLE RESISTOR				
	R3107	QVPE805-501H	V R(G CUT OFF)	500 Ω B	
	R3108	QVPE805-501H	V R(R CUT OFF)	500 Ω B	
	R3109	QVPE805-501H	V R(B CUT OFF)	500 Ω B	
	R3113	QVPE805-301H	V R(G DRIVE)	300 Ω B	
	R3114	QVPE805-301H	V R(R DRIVE)	300 Ω B	
	RESISTOR				
	R3116-21	QRG029J-153A	OM R	15kΩ 2W J	*
	CAPACITOR				
	C3106	QCZ0118-104M	C CAP.	0.1μF 25V Z	*
	C3113	QFZ0097-223M	MM CAP.	0.022μF 1250V K	*
	COIL				
	L3101-03	CELP026-181ZJ2	PEAKING COIL	180μH	*
	L3104-06	CELP026-390ZJ2	PEAKING COIL	39μH	*
	DIODE				
	D3151	1SS133-T2	SI.DIODE		*
	TRANSISTOR				
	Q3101-03	2PC1815(YG)-T	SI.TRANSISTOR		*
	Q3104-06	2SC4544-C1	SI.TRANSISTOR		*
	Q3151	DTC144ES-T	DIGI TRANSISTOR		*
	Q3152-53	2SK301(P)-T	F.E.T.		*
	Q3154	2PA1015(YG)-T	SI.TRANSISTOR		*
	OTHERS				
⚠		CE41603-001J1	C R T SOCKET		*

AUX PW BOARD ASS'Y (SMX-6951A-U2)

⚠ Symbol No.	Part No.	Part Name	Description	Local
RESISTOR				
R6801	QRF104K-5R6	UNF R	5.6 Ω	*

TELETEXT AUX PW BOARD ASS'Y (SMX-7901A-U2)

⚠ Symbol No.	Part No.	Part Name	Description	Local
DIODE				
D7001-03 .	1SS133-T2	SI.DIODE		*

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FRONT CONTROL PW BOARD ASS'Y (SMX-8902A-U2)

⚠ Symbol No.	Part No.	Part Name	Description	Local
CAPACITOR				
C8002	QCZ0118-104M	C CAP.	0.1μF 25V Z	*
DIODE				
D8001	GL3ED8	L E D 2(G+R)	POWER	
D8002	SLR-34DU3F	L.E.D.	TIMER	*
D8003	SLR-34MG3F	L.E.D.	STEREO/BILINGUAL	*
D8004	SLR-34YY3F	L.E.D.(YLW)	S-INPUT SELECT	*
D8005	1SS133-T2	SI.DIODE		*
TRANSISTOR				
Q8001	DTC144ES-T	DIGI TRANSISTOR		*
Q8002-03	DTA144ES-T	DIGI.TRANSISTOR		*
Q8004-09	DTC144ES-T	DIGI TRANSISTOR		*
IC				
IC8001	GP1U721Q	IFR DETECT UNIT		
OTHERS				
S8001	QSP4H11-C03	PUSH SWITCH	POWER	*

SIDE CONTROL PW BOARD ASS'Y (SMX-8951A-U2)

⚠ Symbol No.	Part No.	Part Name	Description	Local
C O I L				
L8051	CELP017-5R6YJ4	PEAKING COIL	5.6 μH	*
L8052	CE41832-001	LEAD CORE		*
L8053-55	CELP017-5R6YJ4	PEAKING COIL	5.6 μH	*
L8056	CE41832-001	LEAD CORE		*
D I O D E				
D8051-56	1SS133-T2	SI.DIODE		*
O T H E R S				
J8051	QMD2B04-001	MINI CONNECTOR		*
J8052	CEMN011-001	JACK		
J8053	CEMN011-002	JACK		
J8054	CEMN011-003	JACK		
J8055	AX49607-004	HEADPHONE JACK		
S8051	CESP001-001	PUSH SWITCH	EXT/S-IN	
S8052	CESP001-001	PUSH SWITCH	PR DOWN/UP	
S8053	CESP001-001	PUSH SWITCH	VOL ±	

LINE FILTER PW BOARD ASS'Y (SMX-9901A-U2)

⚠ Symbol No.	Part No.	Part Name	Description	Local
C A P A C I T O R				
⚠ C9902	QFZ9035-474M	MM CAP.	0.47 μ FAC250V M	*
O T H E R S				
	A44594-002	FUSE CLIP		
⚠ F9901	QMF51D2-3R15J1	FUSE	T3.15AH	*
⚠ LF9901	CE42209-00A	LINE FILTER		
⚠ S9901	QSP2J21-C02	PUSH SWITCH	MAIN POWER	

AUDIO PW BOARD ASS'Y (SMX0A902A-U2)

⚠ Symbol No.	Part No.	Part Name	Description			Local
VARIABLE RESISTOR						
R137	QVPE611-502HZ	V R(PHASE)	5kΩ B			
RESISTOR						
R911	QRG019J-820S	OM R	82 Ω	1W	J	*
CAPACITOR						
C137	QFLC1HJ-822MZ	M CAP.	8200 p F	50V	J	*
C138	QFLC1HJ-104MZ	M CAP.	0.1 μ F	50V	J	*
C140	QFLC1HJ-223MZ	M CAP.	0.022 μ F	50V	J	*
C309	QEM61EK-106MZ	E CAP.	10 μ F	25V	K	*
C407	QFLC1HJ-103MZ	M CAP.	0.01 μ F	50V	J	*
C409	QCT25CH-680Z	C CAP.	68 p F	50V	J	*
C421	QFLC1HJ-563MZ	M CAP.	0.056 μ F	50V	J	*
C454	QFV71HJ-473MZ	TF CAP.	0.047 μ F	50V	J	*
C473-74	QFLC1HJ-472MZ	M CAP.	4700 p F	50V	J	*
C475-76	QFLC1HJ-272MZ	M CAP.	2700 p F	50V	J	*
C477-78	QEN61CM-106Z	BP E CAP.	10 μ F	16V	M	*
C479-80	QFLC1HJ-333MZ	M CAP.	0.033 μ F	50V	J	*
C482-83	QEN61HM-105Z	BP E CAP.	1 μ F	50V	M	*
C604	QFV71HJ-823MZ	TF CAP.	0.082 μ F	50V	J	*
C607	QFLC1HJ-333MZ	M CAP.	0.033 μ F	50V	J	*
C608-09	QFLC1HJ-182MZ	M CAP.	1800 p F	50V	J	*
C610	QFV71HJ-104MZ	TF CAP.	0.1 μ F	50V	J	*
C612-13	QEN61HM-225Z	BP E CAP.	2.2 μ F	50V	M	*
C653-54	QFLC1HJ-272MZ	M CAP.	2700 p F	50V	J	*
C655	QEN61HM-225Z	BP E CAP.	2.2 μ F	50V	M	*
C656-61	QFV71HJ-104MZ	TF CAP.	0.1 μ F	50V	J	*
C662-64	QEN61HM-225Z	BP E CAP.	2.2 μ F	50V	M	*
C703-04	QFV71HJ-683MZ	TF CAP.	0.068 μ F	50V	J	*
C705-06	QFV71HJ-274MZ	TF CAP.	0.27 μ F	50V	J	*
C707-08	QFLC1HJ-152MZ	M CAP.	1500 p F	50V	J	*
C709-10	QFLC1HJ-223MZ	M CAP.	0.022 μ F	50V	J	*
C755-56	QFV71HJ-124MZ	TF CAP.	0.12 μ F	50V	J	*
C758	QEH81CM-228M	E CAP.	2200 μ F	16V	M	*
C912	QFLC1HJ-103MZ	M CAP.	0.01 μ F	50V	J	*
TRANSFORMER						
T100	CELT039-303J1	CW TRANSF				*
COIL						
L102	CELP026-1R2ZJ2	PEAKING COIL	1.2 μ H			*
L401	CELP027-100Z	PEAKING COIL	10 μ H			*
L402	CELP026-5R6	PEAKING COIL	5.6 μ H			*
L451-52	CELP026-100ZJ2	PEAKING COIL	10 μ H			*
L951-52	CELC026-100	CHOKE COIL	10 μ H			*
L953	CE41832-001	LEAD CORE				*
DIODE						
D301-02	1SS133-T2	SI.DIODE				*
D651	RD9.1ES(B2)-T2	ZENER DIODE				
D701	RD6.2ES(B2)-T2	ZENER DIODE				
D702-05	1SS133-T2	SI.DIODE				*
D731-34	1SS133-T2	SI.DIODE				*
D751-52	RD33ES(B1)-T2	ZENER DIODE				
TRANSISTOR						
Q102	2SC1906-T	SI.TRANSISTOR				*
Q105	2PA1015(YG)-T	SI.TRANSISTOR				*
Q301	2PA1015(YG)-T	SI.TRANSISTOR				*
Q302-03	DTC323TS-T	DIGI.TRANSISTOR				*
Q305	2PC1815(YG)-T	SI.TRANSISTOR				
Q401-04	2PC1815(YG)-T	SI.TRANSISTOR				
Q601	2PC1815(YG)-T	SI.TRANSISTOR				
Q602	2PA1015(YG)-T	SI.TRANSISTOR				
Q603	2PC1815(YG)-T	SI.TRANSISTOR				
Q731	2PA1015(YG)-T	SI.TRANSISTOR				*
Q732-33	2PC1815(YG)-T	SI.TRANSISTOR				*

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⚠	Symbol No.	Part No.	Part Name	Description	Local
	I C				
	IC101	TDA9800	I.C.		*
	IC302	TK15021Z	I.C.		*
	IC401	CF70088	I.C.		*
	IC402	SM5840HP	I.C.		
	IC403	TDA1312	I.C.		*
	IC404	LM324N	I.C.		*
	IC405	MN1280-Q	I.C(DIGI-MOS)		*
	IC601	UPC1891ACY	I.C(MONO-ANA)		
	IC602	TDA7314J	I.C.		*
	IC701-02	BA15218N	I.C.(M)		*
	IC703	TA8200AH	I.C(MONO-ANA)		*
	IC911	L7805ABV	I.C(MONO-ANA)		*
	O T H E R S				
	CF103-04	A75111-C-T2	CERAMIC FILTER		*
	CF152	TPS6.0MD	C TRAP		
⚠	CP901	ICP-N15-Y	I.C.PROTECT		*
⚠	FR335	QRZ0054-470M	F R	47 Ω 1/4W J	*
⚠	FR460	QRZ0054-470M	F R	47 Ω 1/4W J	*
⚠	FR615	QRZ0054-470M	F R	47 Ω 1/4W J	*
⚠	FR653	QRZ0054-470M	F R	47 Ω 1/4W J	*
⚠	FR719	QRZ0054-470M	F R	47 Ω 1/4W J	*
	J901	CEMT012-001	PUSH TERMINAL		*
	S901	QSS4C22-C04	SLIDE SWITCH	SPEAKER SELECT	*
	SF101	CE41031-301	SAW FILTER		*
	X401	CE42299-001	CRYSTAL		*

PIF PW BOARD ASS'Y (SMX0F901A-U2)

⚠ Symbol No.	Part No.	Part Name	Description			Local
VARIABLE RESISTOR						
R137	QVPA603-102AZ	V R(V LEVEL)	1kΩ B			
CAPACITOR						
C111-12	QCT25CH-101Z	C CAP.	100 p F	50V	J	*
C113-14	QCT25CH-181Z	C CAP.	180 p F	50V	J	*
C117	QCT25CH-4R0Z	C CAP.	4 p F	50V	J	*
C118	QCT25CH-5R0Z	C CAP.	5 p F	50V	J	*
C121	QEE61VK-224BZ	TAN.CAP.	0.22 μ F	35V	K	
C126-27	QCT25CH-101Z	C CAP.	100 p F	50V	J	*
C129	QCT25CH-680AZ	C CAP.	68 p F	50V	J	*
C135	QCT25CH-221AZ	C CAP.	220 p F	50V	J	*
C705	QFV71HJ-124MZ	TF CAP.	0.12 μ F	50V	J	*
C706	QFV71HJ-683MZ	TF CAP.	0.068 μ F	50V	J	*
TRANSFORMER						
T101	CELT009-312J1	PIX I.F.TRANSF.				*
T102	CELT001-304J1	CW TRANSFORMER				*
T103	CE40123-600J1	AFC TRANSFORMER				*
T104	CE41597-401	TRAP COIL				*
T105	CELT022-002J1	TRAP TRANSF.				*
COIL						
L101	CELP041-R56	PEAKING COIL	0.56 μ H			*
L104	CELP042-2R7	PEAKING COIL	2.7 μ H			*
L105	CELP026-100Z	PEAKING COIL	10 μ H			*
L106	CELP026-100ZJ2	PEAKING COIL	10 μ H			*
DIODE						
D101	MA4100(M)-T2	ZENER DIODE				*
D701	1SS133-T2	SI.DIODE				*
TRANSISTOR						
Q101-04	2SC4502-T	SI.TRANSISTOR				*
Q105	2PC1815(YG)-T	SI.TRANSISTOR				*
Q106	2PA1015(YG)-T	SI.TRANSISTOR				*
Q107	2PC1815(YG)-T	SI.TRANSISTOR				*
Q108	2SC1959(Y)-T	SI.TRANSISTOR				*
Q109	2PA1015(YG)-T	SI.TRANSISTOR				*
Q701	2PC1815(YG)-T	SI.TRANSISTOR				*
IC						
IC101	M51496P	I.C(MONO-ANA)				*
IC701	LA7210	I.C(MONO-ANA)				
OTHERS						
CF101	A76138	CERAMIC TRAP				*
SF101	CE40454-303	SAW FILTER				*
X701	CSB500F9	CER.RESONATOR				*

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VNR & RGB SWITCH PW BOARD ASS'Y (SMX0N901A-U2)

⚠ Symbol No.	Part No.	Part Name	Description			Local
CAPACITOR						
C102	QFLC1HJ-103MZ	M CAP.	0.01μF	50V	J	*
C104	QFLC1HJ-103MZ	M CAP.	0.01μF	50V	J	*
C205	QFLC1HJ-103MZ	M CAP.	0.01μF	50V	J	*
C206	QFV71HJ-104MZ	TF CAP.	0.1μF	50V	J	*
C209	QFV71HJ-104MZ	TF CAP.	0.1μF	50V	J	*
C212	QFLC1HJ-103MZ	M CAP.	0.01μF	50V	J	*
COIL						
L101	CELP026-330ZJ2	PEAKING COIL	33μH			*
DIODE						
D101	MA4062(M)-T2	ZENER DIODE				*
D102	1SS133-T2	SI.DIODE				*
D103	MA4062(M)-T2	ZENER DIODE				*
D104	1SS133-T2	SI.DIODE				*
D105	MA4062(M)-T2	ZENER DIODE				*
D106-07	1SS133-T2	SI.DIODE				*
D108	RD18ES(B3)-T2	ZENER DIODE				
D109	RD3.6ES(B1)-T2	ZENER DIODE				
TRANSISTOR						
Q101-04	DTC144ES-T	DIGI TRANSISTOR				*
Q105	2PC1815(YG)-T	SI.TRANSISTOR				*
Q106	DTC144ES-T	DIGI TRANSISTOR				*
Q107-10	2PA1015(YG)-T	SI.TRANSISTOR				*
Q111	2PC1815(YG)-T	SI.TRANSISTOR				*
Q113-15	2PC1815(YG)-T	SI.TRANSISTOR				*
Q201-03	2PC1815(YG)-T	SI.TRANSISTOR				*
Q204	2PA1015(YG)-T	SI.TRANSISTOR				*
Q205	2PC1815(YG)-T	SI.TRANSISTOR				*
Q206-07	DTC144ES-T	DIGI TRANSISTOR				*
Q208	2PC1815(YG)-T	SI.TRANSISTOR				*
IC						
IC101	TC4053BP	I.C(DIGI-MOS)				*
IC102	AN5860	I.C.(M)				*
IC201	M51494L	I.C(MONO-ANA)				*

AV SELECTOR PW BOARD ASS'Y (SMX0S901A(U))

⚠ Symbol No.	Part No.	Part Name	Description	Local
VARIABLE RESISTOR				
R507	QVPE611-101HZ	V R(LEVEL)	100 Ω B	
R773	QVPC611-203HZ	V R(VP WIDTH)	20kΩ B	
RESISTOR				
R112	QRG019J-101S	OM R	100 Ω 1W J	
R114	QRD123J-271SX	C R	270 Ω 1/2W J	
R153	QRD123J-221SX	C R	220 Ω 1/2W J	
R204	QRG019J-101S	OM R	100 Ω 1W J	
R205	QRD123J-271SX	C R	270 Ω 1/2W J	
R257	QRD123J-221SX	C R	220 Ω 1/2W J	
CAPACITOR				
C103	QEN61CM-107Z	BP E CAP.	100 µF 16V M	
C109	QEKC1CM-476MZ	E CAP.	47 µF 16V M	
C122	NCF21EZ-104AY	CHIP C CAP.	0.1 µF 25V Z	
C125	QFLC1HJ-103MZ	M CAP.	0.01 µF 50V J	
C152	NCF21EZ-104AY	CHIP C CAP.	0.1 µF 25V Z	
C159-62	NCB21HK-472AY	CHIP CAP.	4700 p F 50V K	
C171-73	NCT03CH-102AY	CHIP CAP.	1000 p F 1600V H	
C204	QFLC1HJ-103MZ	M CAP.	0.01 µF 50V J	
C255-58	NCB21HK-472AY	CHIP CAP.	4700 p F 50V K	
C302	QFLC1HJ-103MZ	M CAP.	0.01 µF 50V J	
C403	QFLC1HJ-103MZ	M CAP.	0.01 µF 50V J	
C407	NCF21EZ-104AY	CHIP C CAP.	0.1 µF 25V Z	
C409	QEN51AM-227	BP E CAP.	220 µF 10V M	
C410	NCT03CH-120AY	CHIP CAP.	12 p F 1600V H	
C502	NCF21EZ-104AY	CHIP C CAP.	0.1 µF 25V Z	
C509	QEN61CM-336Z	BP E CAP.	33 µF 16V M	
C510	QFLC1HJ-103MZ	M CAP.	0.01 µF 50V J	
C511	QEN61CM-336Z	BP E CAP.	33 µF 16V M	
C513	NCT03CH-330AY	CHIP CAP.	33 p F 1600V H	
C515	NCF21EZ-104AY	CHIP C CAP.	0.1 µF 25V Z	
C521-22	QFLC1HJ-103MZ	M CAP.	0.01 µF 50V J	
C524	NCF21EZ-104AY	CHIP C CAP.	0.1 µF 25V Z	
C525	QFLC1HJ-103MZ	M CAP.	0.01 µF 50V J	
C527	QFLC1HJ-103MZ	M CAP.	0.01 µF 50V J	
C703	NCF21EZ-104AY	CHIP C CAP.	0.1 µF 25V Z	
C705	NCF21EZ-104AY	CHIP C CAP.	0.1 µF 25V Z	
C707	NCF21EZ-104AY	CHIP C CAP.	0.1 µF 25V Z	
C708	QFLC1HJ-153MZ	M CAP.	0.015 µF 50V J	
C711	NCF21EZ-104AY	CHIP C CAP.	0.1 µF 25V Z	
C713-14	NCF21EZ-104AY	CHIP C CAP.	0.1 µF 25V Z	
C716	QFV71HJ-474MZ	TF CAP.	0.47 µF 50V J	
C718	QETC0JM-227Z	E CAP.	220 µF 6.3V M	
C719	QFLC1HJ-103MZ	M CAP.	0.01 µF 50V J	
C752	NCF21EZ-104AY	CHIP C CAP.	0.1 µF 25V Z	
C753	QCT25CH-470Z	C CAP.	47 p F 50V J	
C756	NCT03CH-102AY	CHIP CAP.	1000 p F 1600V H	
C758	NCT03CH-100AY	CHIP CAP.	10 p F 1600V H	
C759	QFP31HJ-153SZ	PP CAP.	0.015 µF 50V J	
C760-61	QFLC1HJ-103MZ	M CAP.	0.01 µF 50V J	
C762	QCT25CH-6R0Z	C CAP.	6 p F 50V J	
C765	NCF21EZ-104AY	CHIP C CAP.	0.1 µF 25V Z	
C767	NCF21EZ-104AY	CHIP C CAP.	0.1 µF 25V Z	
COIL				
L151	CE41832-001	LEAD CORE		
L152-55	CELP017-5R6Y	PEAKING COIL	5.6 µH	
L251	CE41832-001	LEAD CORE		
L252-55	CELP017-5R6Y	PEAKING COIL	5.6 µH	
L501-02	CELP026-101Z	PEAKING COIL	100 µH	
L701-04	CELP026-101Z	PEAKING COIL	100 µH	
L751	CELP026-101Z	PEAKING COIL	100 µH	
L752	CELP027-220Z	PEAKING COIL	22 µH	
L753	CELP027-100Z	PEAKING COIL	10 µH	

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8 Cherry Tree Rd, Chinnor
Oxon OX9 4QY
Tel:- 01844-351694 Fax:- 01844-352554
Email:- enquiries@mauritron.co.uk

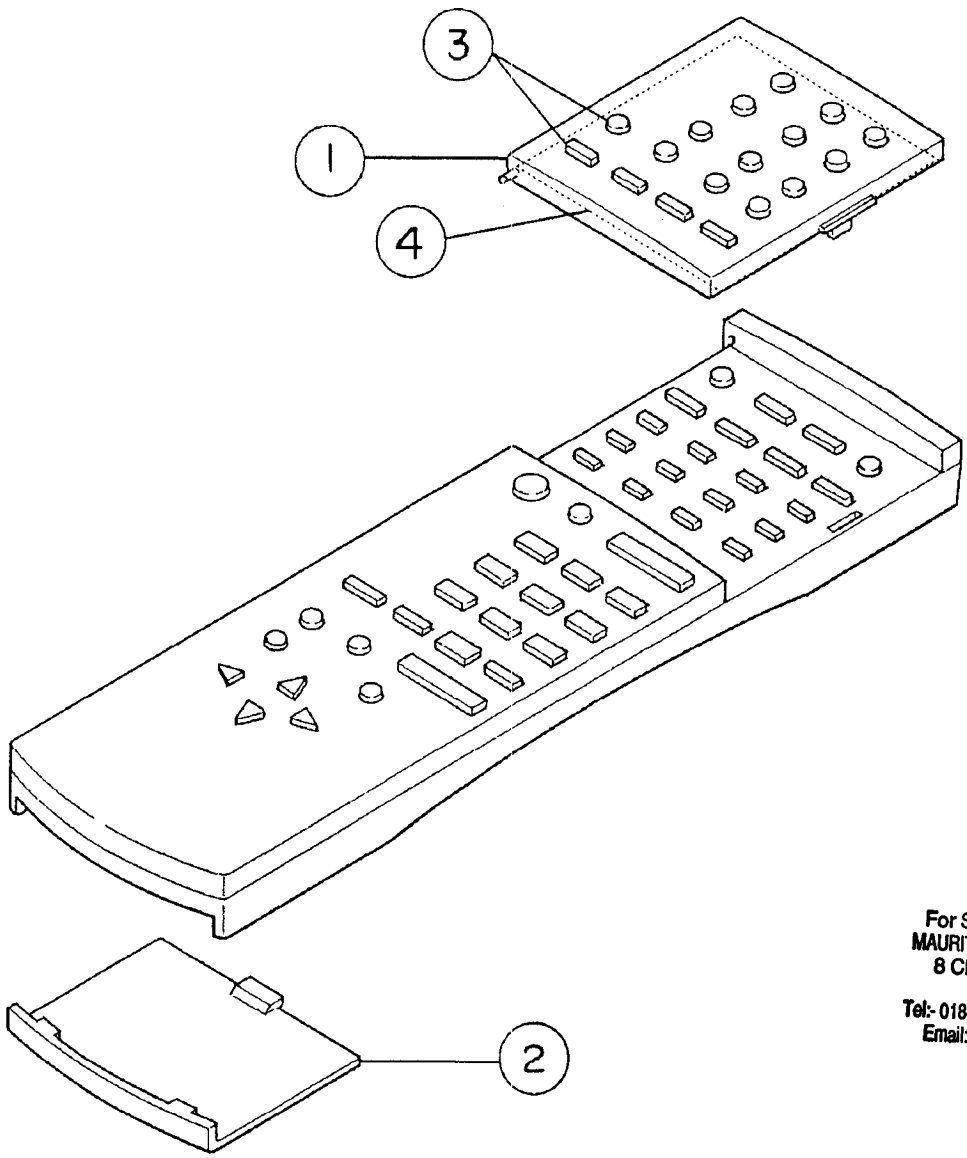
⚠	Symbol No.	Part No.	Part Name	Description	Local
	D I O D E				
	D001-02	1SS133-T2	SI.DIODE		
	D101-02	MTZJ13(B)-T2	ZENER DIODE		
	D121-24	MTZJ13(B)-T2	ZENER DIODE		
	D151-54	MTZJ13(B)-T2	ZENER DIODE		
	D171-72	MTZJ13(B)-T2	ZENER DIODE		
	D173	1SS133-T2	SI.DIODE		
	D201-02	MTZJ13(B)-T2	ZENER DIODE		
	D251-54	MTZJ13(B)-T2	ZENER DIODE		
	D255-56	1SS133-T2	SI.DIODE		
	D301-02	MTZJ13(B)-T2	ZENER DIODE		
	D353-54	MTZJ13(B)-T2	ZENER DIODE		
	D401-03	1SS133-T2	SI.DIODE		
	D405-06	MTZJ13(B)-T2	ZENER DIODE		
	D701	1SS133-T2	SI.DIODE		
	T R A N S I S T O R				
	Q001-02	DTC144EK-W	DIGI TRANSISTOR		
	Q006	DTC144EK-W	DIGI TRANSISTOR		
	Q101-02	2SA1162(YG)-W	SI.TRANSISTOR		
	Q103	2SC2712(YG)-W	SI.TRANSISTOR		
	Q104	2SC1815(YG)-T	SI.TRANSISTOR		
	Q121	2SC2712(YG)-W	SI.TRANSISTOR		
	Q122	2SA1162(YG)-W	SI.TRANSISTOR		
	Q123-24	2SC2712(YG)-W	SI.TRANSISTOR		
	Q125	2SA1162(YG)-W	SI.TRANSISTOR		
	Q151-52	2SC2712(YG)-W	SI.TRANSISTOR		
	Q201	2SA1162(YG)-W	SI.TRANSISTOR		
	Q202	2SC1815(YG)-T	SI.TRANSISTOR		
	Q251-54	2SC2712(YG)-W	SI.TRANSISTOR		
	Q255	2SA1162(YG)-W	SI.TRANSISTOR		
	Q401	DTC144EK-W	DIGI TRANSISTOR		
	Q402	2SC2712(YG)-W	SI.TRANSISTOR		
	Q403	2SA1162(YG)-W	SI.TRANSISTOR		
	Q501-04	2SC2712(YG)-W	SI.TRANSISTOR		
	Q505	2SA1162(YG)-W	SI.TRANSISTOR		
	Q506-07	2SC2712(YG)-W	SI.TRANSISTOR		
	Q602	2SC2712(YG)-W	SI.TRANSISTOR		
	Q701-02	2SA1162(YG)-W	SI.TRANSISTOR		
	Q751-54	2SC2712(YG)-W	SI.TRANSISTOR		
	I C				
	IC171	NJM2901N	I.C.		
	IC201	TC4066BF-W	I.C(DIGI-MOS)		
	IC401	MC13547SP	I.C(MONO-ANA)		
	IC402	AN78L09	I.C.		
	IC501-02	LA7016	I.C.		
	IC701	MC141625AFU	I.C(DIGI-OTHER)		
	IC702	AN7805	I.C.		
	IC751	NJM2240M-W	I.C.		
	IC752	TC4538BP	I.C(DIGI-MOS)		
	O T H E R S				
	DL501-02	CE42330-001	L P F		
	DL503	CE42382-001	L P F		
⚠	FR414	QRZ0054-100M	F R	10 Ω 1/4W J	
⚠	FR711	QRZ0054-120M	F R	12 Ω 1/4W J	
	J001-02	CEMJ001-001	21 PIN SOCKET		

MODULE PW BOARD PARTS LIST

The following module pw boards are supplied as assemblies.
The component parts only the module pw boards are available only when the parts are listed in the "MODULE PRINTED WIRING BOARD PARTS LIST".

TELETEXT MODULE (SMX-T901A(U))

REMOTE CONTROL UNIT (RM-C873-E)



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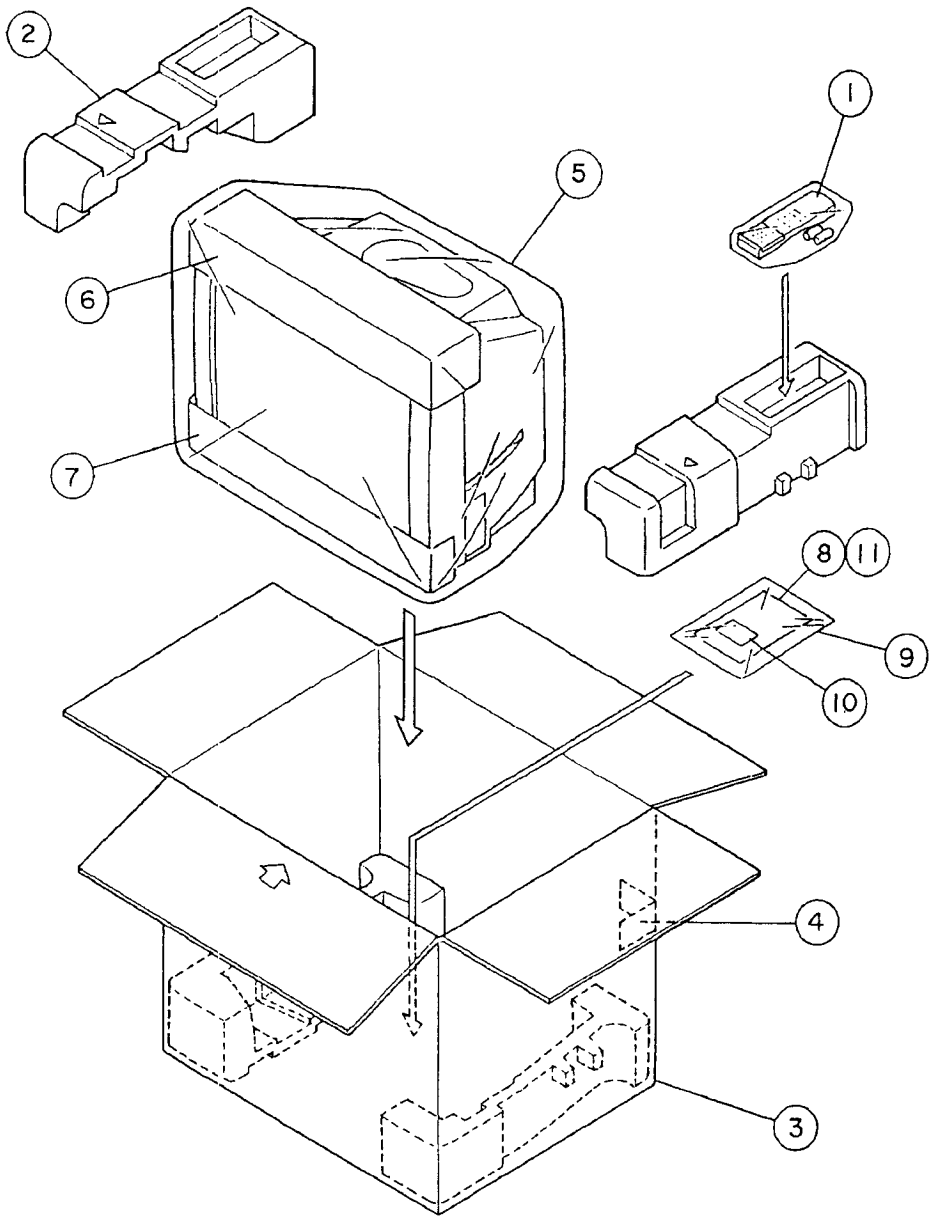
Email:- enquiries@mauritron.co.uk

REMOTE CONTROL UNIT PARTS LIST

⚠ Ref.No.	Part No.	Part Name	Description	Local
1	103RRC-028-02UR	FRONT COVER		*
2	103RRC-027-01UR	BATTERY COVER		*
3	421RRC-036-01UR	RUBBER SHEET		*
4	703RRC-020-01UR	BASE COVER		*

PACKING



PACKING PARTS LIST

⚠ Ref.No.	Part No.	Part Name	Description	Local
1	RM-C873-E	RC HAND PIECE		*
2	CP11228-A0A-E	CUSHION ASSY	(AV-25S1EK)	*
2	CP11229-00A-E	CUSHION ASSY	(AV-28S1EK)	*
3	AEM1002-017-E	PACKING CASE	(AV-25S1EK)	*
3	CP10891-A27	PACKING CASE	(AV-28S1EK)	
4	AEM1029-003-E	EURO LABEL	(AV-25S1EK)	*
4	AEM1029-004-E	EURO LABEL	(AV-28S1EK)	*
5	AEM1004-003-E	SET COVER	(AV-25S1EK)	*
5	AEM1004-004-E	SET COVER	(AV-28S1EK)	*
6	CP40193-009-E	CUSHION SHEET		*
7	CP40193-010-E	CUSHION SHEET		*
8	258SGS1EK-IBAE	INST BOOK		*
9	AEM3021-001-E	DOCU BAG		*
10	BT-20066A-E	ADDRESS CARD		*
11	BT-20060-E	WARRANTY CARD		*

AV-25S1EK / AV-28S1EK STANDARD CIRCUIT DIAGRAM

■NOTE ON USING CIRCUIT DIAGRAMS

1.SAFETY

The components identified by the ⚠ symbol and shading are critical for safety. For continued safety replace safety critical components only with manufactures recommended parts.

2.SPECIFIED VOLTAGE AND WAVEFORM VALUES

The voltage and waveform values have been measured under the following conditions.

(1)Input signal :PAL Colour bar signal
(2)Setting positions of each knob/button and variable resistor :Original setting position when shipped
(3)Internal resistance of tester :DC 20kΩ/V
(4)Oscilloscope sweeping time :H ⇒20μS/div
:V ⇒5mS/div
:Others ⇒ Sweeping time is specified
(5)Voltage values :All DC voltage values

* Since the voltage values of signal circuit vary to some extent according to adjustments, use them as reference values.

3.INDICATION OF PARTS SYMBOL[EXAMPLE]

•In the PW board :R1209→R209

4.INDICATIONS ON THE CIRCUIT DIAGRAM

(1)Resistors

•Resistance value
No unit :[Ω]
K :[KΩ]
M :[MΩ]

•Rated allowable power
No indication :1/6[W]
Others :As specified

•Type
No indication :Carbon resistor
OMR :Oxide metal film resistor
MFR :Metal film resistor
MPR :Metal plate resistor
UNFR :Uninflammable resistor
FR :Fusible resistor

* Composition resistor 1/2 [W] is specified as 1/2S or Comp.

(2)Capacitors

•Capacitance value
1or higher :[pF]
less than 1 :[μF]

•Withstand voltage
No indication :DC50[V]
Others :DC withstand voltage[V]
AC indicated :AC withstand voltage[V]

* Electrolytic Capacitors
47/50[Example]:Capacitance value[μF]/withstand voltage[V]

•Type
No indication :Ceramic capacitor
MY :Mylar capacitor
MM :Metalized mylar capacitor
PP :Polypropylene capacitor
MPP :Metalized polypropylene capacitor
MF :Metalized film capacitor
TF :Thin film capacitor
BP :Bipolar electrolytic capacitor
TAN :Tantalum capacitor

(3)Coils

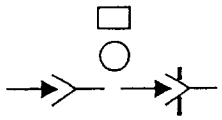
No unit :[μH]
Others :As specified

(4)Power Supply

* Respective voltage values are indicated.

(5)Test Point

(6)Connecting method



(7)Ground symbol

: LIVE side ground
: NEUTRAL side ground
: EARTH ground
: DIGITAL ground

5.NOTE FOR REPAIRING SERVICE

The power supply circuit of this model has different ground potentials. The different potentials are shown by LIVE (primary) ⊥ and the NEUTRAL (secondary) ⏚ on the circuit diagrams. Do not touch the LIVE GND or the LIVE GND and the NEUTRAL GND simultaneously. Failure to observe this will result in electric shock. Check that the power cord is removed from the wall socket when removing the chassis from the case.

Be sure never to short between the LIVE GND and the NEUTRAL GND and never measure with measuring instrument (oscilloscope, etc.) connected between the LIVE GND and the NEUTRAL GND at the same time.

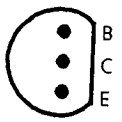
Failure to observe this will result in component damage.

◇ **Since the circuit diagram is a standard one, the circuit and circuit constants may be subject to change for improvement without any notice.**

Apr. 1993 No.50789

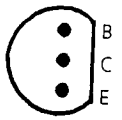
SEMICONDUCTOR SHAPES

TRANSISTERS



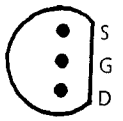
※ Bottom View

2PC1815(YG)-T
2PA1015(YG)-T
2SC1959(Y)-T
2SC1906-T
2SC1815(YG)-T



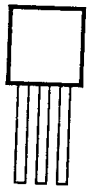
※ Bottom View

2SA966(OY)-T

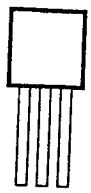


※ Bottom View

2SK301(P)-T



DTC144ES-T
DTA144ES-T



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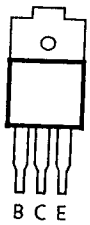
DTC124ES-T



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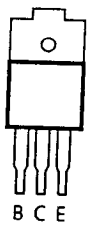

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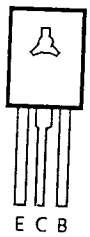

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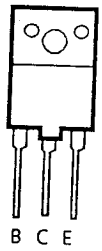

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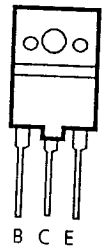

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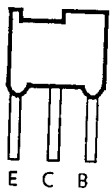

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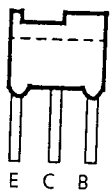

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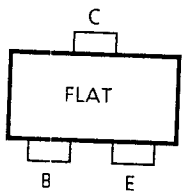

DTC144EK-W
2SA1162(YG)-W
2SC2712(YG)-W

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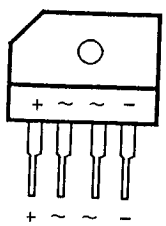
DIODES



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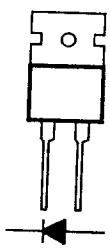
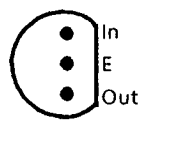


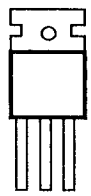
BY229-600

ICS The numbers in parentheses are the numbers of IC pins.



※ Bottom View

AN78L09



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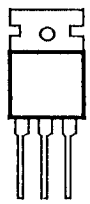

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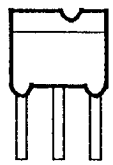

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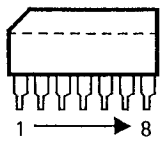

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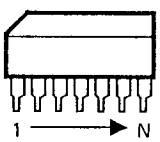

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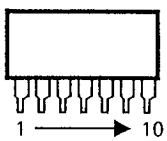

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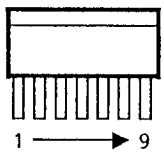

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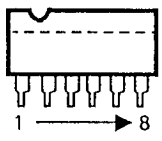

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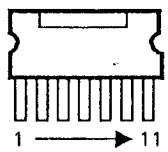

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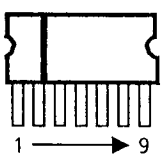

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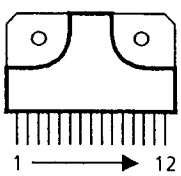

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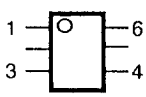

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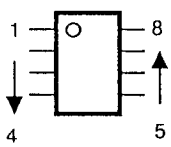

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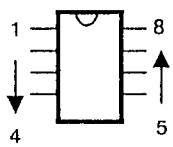
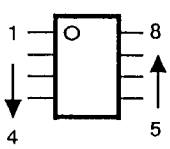


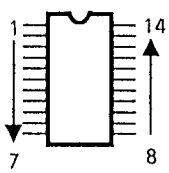
TDA1312(8PIN)
PCF8582AP(8PIN)
M6M80041P(8PIN)

FLAT

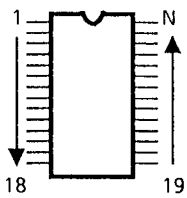


NJM2240M-W

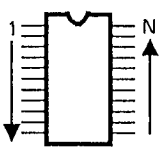
FLAT



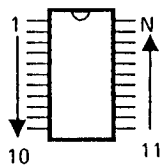
TC4066BF-W



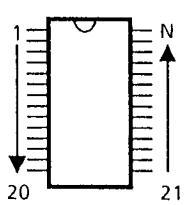
TA8747N(36PIN)
TA8759BN(64PIN)



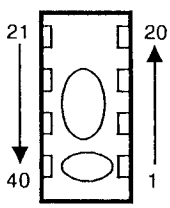
AN5860(14PIN)
TC4053BP(16PIN)
UPC1891ACY(20PIN)
TC4538BP(16PIN)
TC4066BP(14PIN)
TA8739P(16PIN)
UPD6326C(16PIN)



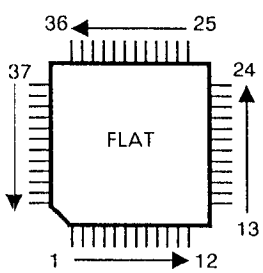
TDA3842(20PIN)
TDA9800(20PIN)
TDA8415(20PIN)
TDA7314(24PIN)
SM5840HP(18PIN)
LM324N(14PIN)
TEA2261(16PIN)
NJM2901N(14PIN)
CAT51C256A-70R
(16PIN)



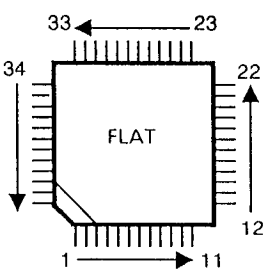
CF70088(40PIN)
M37204M8-XXXSP
(64PIN)



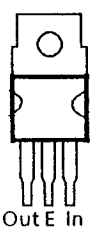
SDA20160-A018



MC141625FU



MV1815-1BAGP-W



L7805ABV

MAIN PARTS LOCATION AND ALIGNMENTS LOCATION

See the table below for the functions of the VR,trimmer capacitor,transformer,etc.,on each PWB.

A: PIF PWB ASS'Y
- R137 Video detection output level

B: AV SELECTOR PWB ASS'Y
- R773 Vertical pules width VR
- R507 Comb filter input level VR

C: MAIN PWB ASS'Y
- R012 Noise (RF AGC) VR
- R207 Sub CONTRAST VR
- R216 Sub BRIGHT VR
- R305 Sub TINT VR
- R309 DL GAIN VR
- R504 H.CENTER VR
- T301 DL PHASE transformar
- S441 V. CENTER SW

D: POWER PWB ASS'Y
- R032 B1 voltage adjustment VR

D: LINE FILTER PWB ASS'Y

E: VNR & RGB SW PWB ASS'Y

F: TELETEXT MODULE

G: SIDE CONTROL PWB ASS'Y

H: FRONT CONTROL PWB ASS'Y

I: CRT SOCKET PWB ASS'Y
- R107 Green cut-off VR
- R108 Red cut-off VR
- R109 Blue cut-off VR
- R113 Green drive VR
- R114 Red drive VR

J: AUX PWB ASS'Y

K: AUDIO PWB ASS'Y

L: TELETEXT AUX PWB ASS'Y

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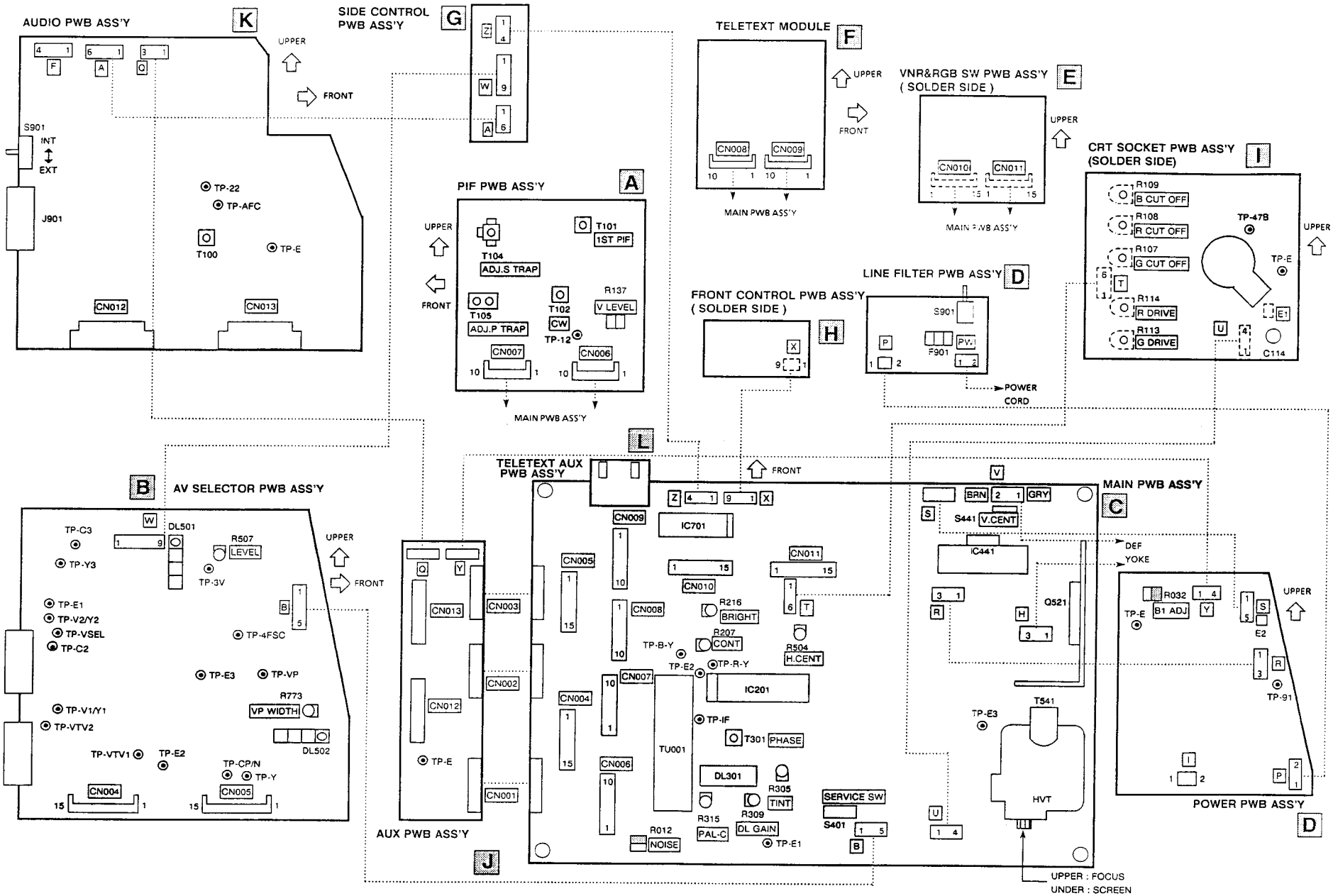
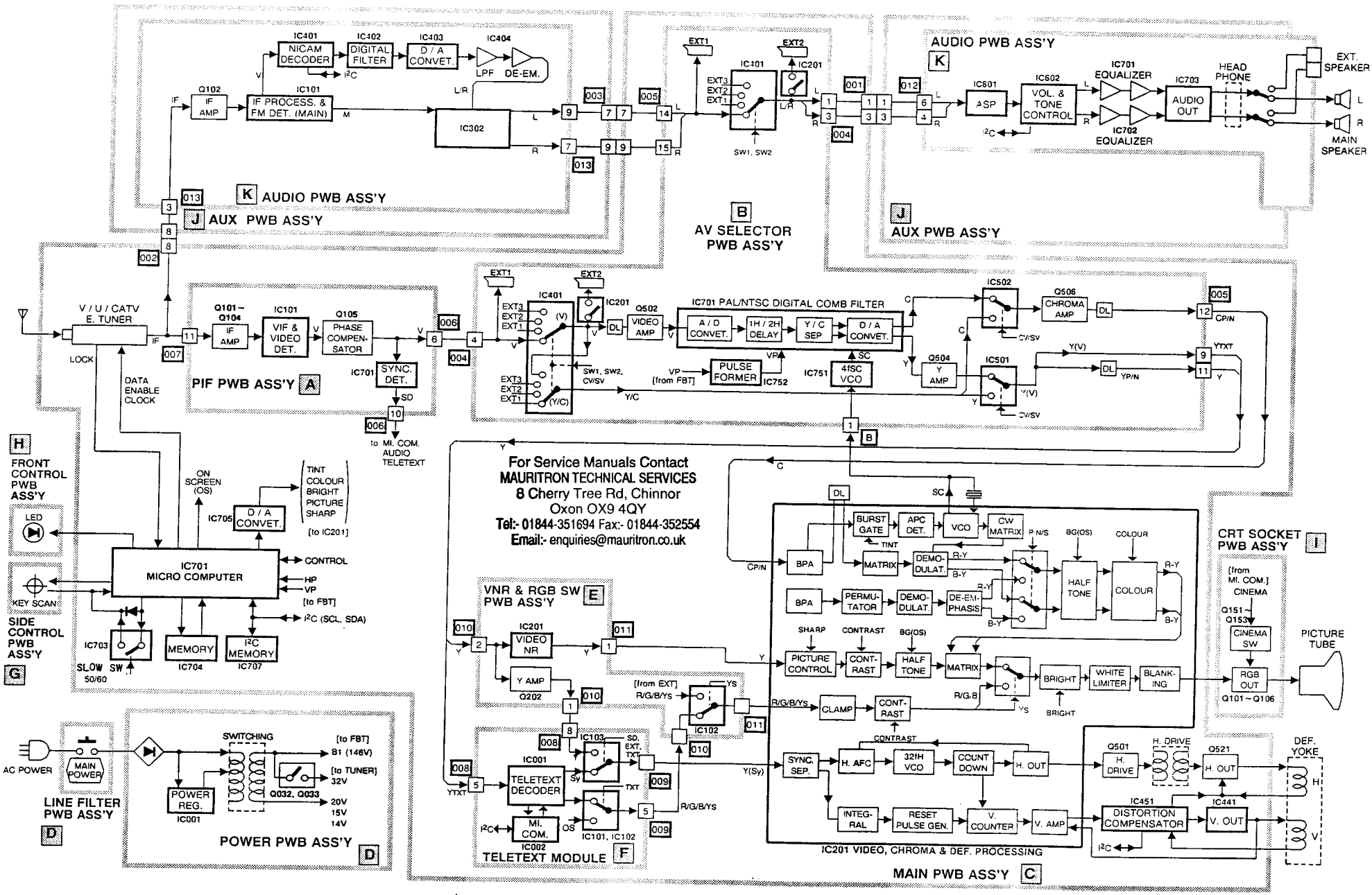

AUDIO PWB ASS'Y
K
UPPER
FRONT
S901
INT
EXT
J901
TP-22
TP-AFC
T100
TP-E
CN012
CN013
SIDE CONTROL PWB ASS'Y
G
W
A
PIF PWB ASS'Y
A
T104
ADJ.S TRAP
T101
1ST PIF
T105
ADJ.P TRAP
T102
CW
TP-12
R137
V LEVEL
CN007
CN006
MAIN PWB ASS'Y
TELETEXT MODULE
F
CN008
CN009
VNR&RGB SW PWB ASS'Y
(SOLDER SIDE)
E
CN010
CN011
CRT SOCKET PWB ASS'Y
(SOLDER SIDE)
I
R109
B CUT OFF
R108
R CUT OFF
R107
G CUT OFF
R114
R DRIVE
R113
G DRIVE
TP-47B
TP-E
C114
FRONT CONTROL PWB ASS'Y
(SOLDER SIDE)
H
LINE FILTER PWB ASS'Y
D
S901
F901
PV.
POWER CORD
B
AV SELECTOR PWB ASS'Y
DL501
R507
LEVEL
TP-C3
TP-Y3
TP-3V
TP-E1
TP-V2/Y2
TP-VSEL
TP-C2
TP-4FSC
TP-E3
TP-VP
R773
VP WIDTH
TP-V1/Y1
TP-VTV2
DL502
TP-VTV1
TP-E2
TP-CP/N
TP-Y
CN004
CN005
L
TELETEXT AUX PWB ASS'Y
IC701
CN009
CN011
CN010
CN008
R216
BRIGHT
R207
CONT
R504
H.CENT
TP-B-Y
TP-R-Y
TP-E2
CN007
IC201
CN004
TP-IF
T301
PHASE
TU001
CN006
DL301
R305
TINT
R309
DL GAIN
R315
PAL-C
R012
NOISE
TP-E1
SERVICE SW
S401
CN003
CN002
CN001
CN013
CN012
AUX PWB ASS'Y
J
MAIN PWB ASS'Y
C
S441
V.CENT
IC441
DEF
YOKE
Q521
R032
B1 ADJ
TP-E
E2
TP-91
T541
TP-E3
HVT
POWER PWB ASS'Y
D
UPPER : FOCUS
UNDER : SCREEN

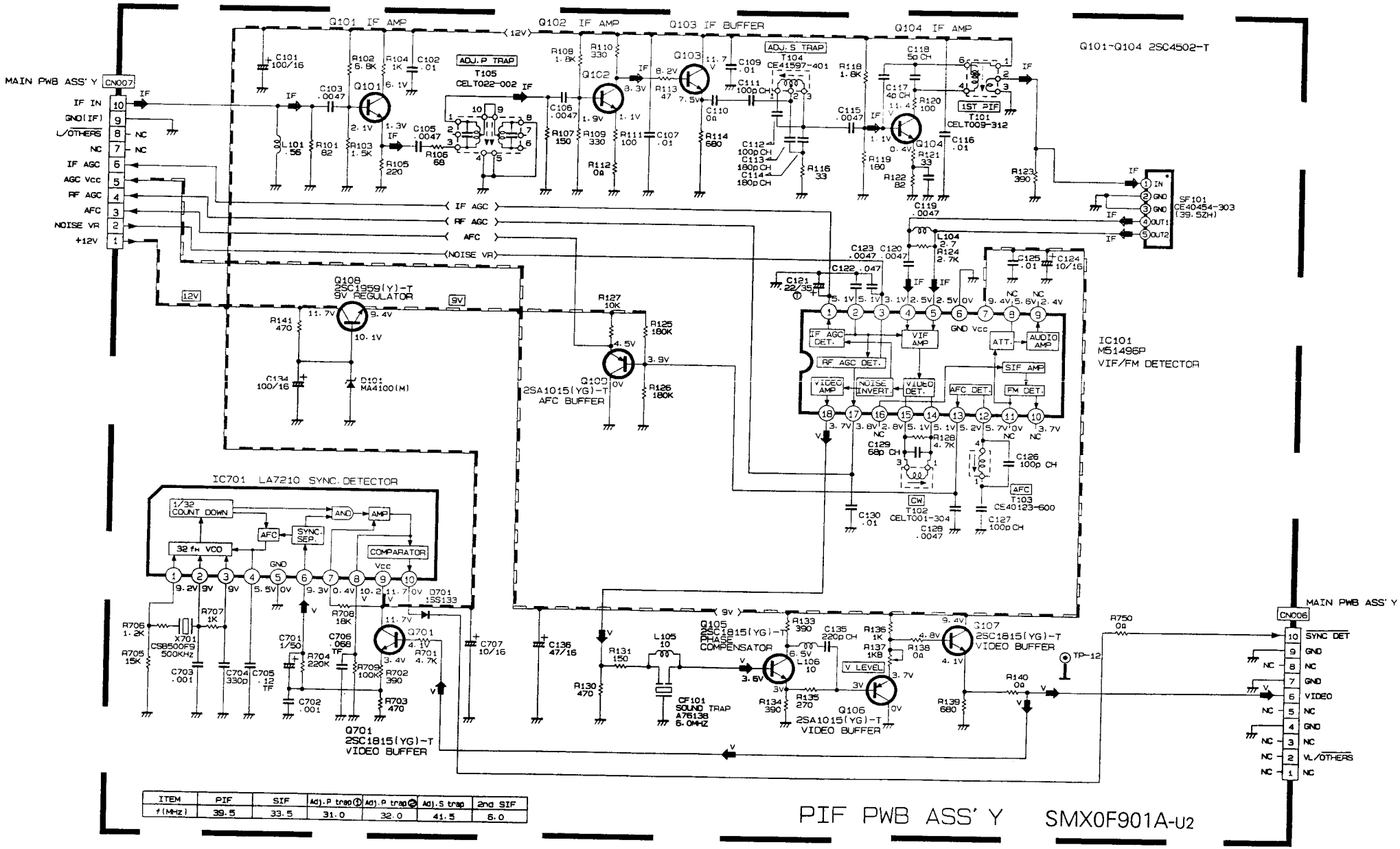
BLOCK DIAGRAM



CIRCUIT DIAGRAMS AND PWB PATTERNS

PIF PWB CIRCUIT DIAGRAM

Refer to the following PWB pattern. : PIF PWB PATTERN 3-32page.

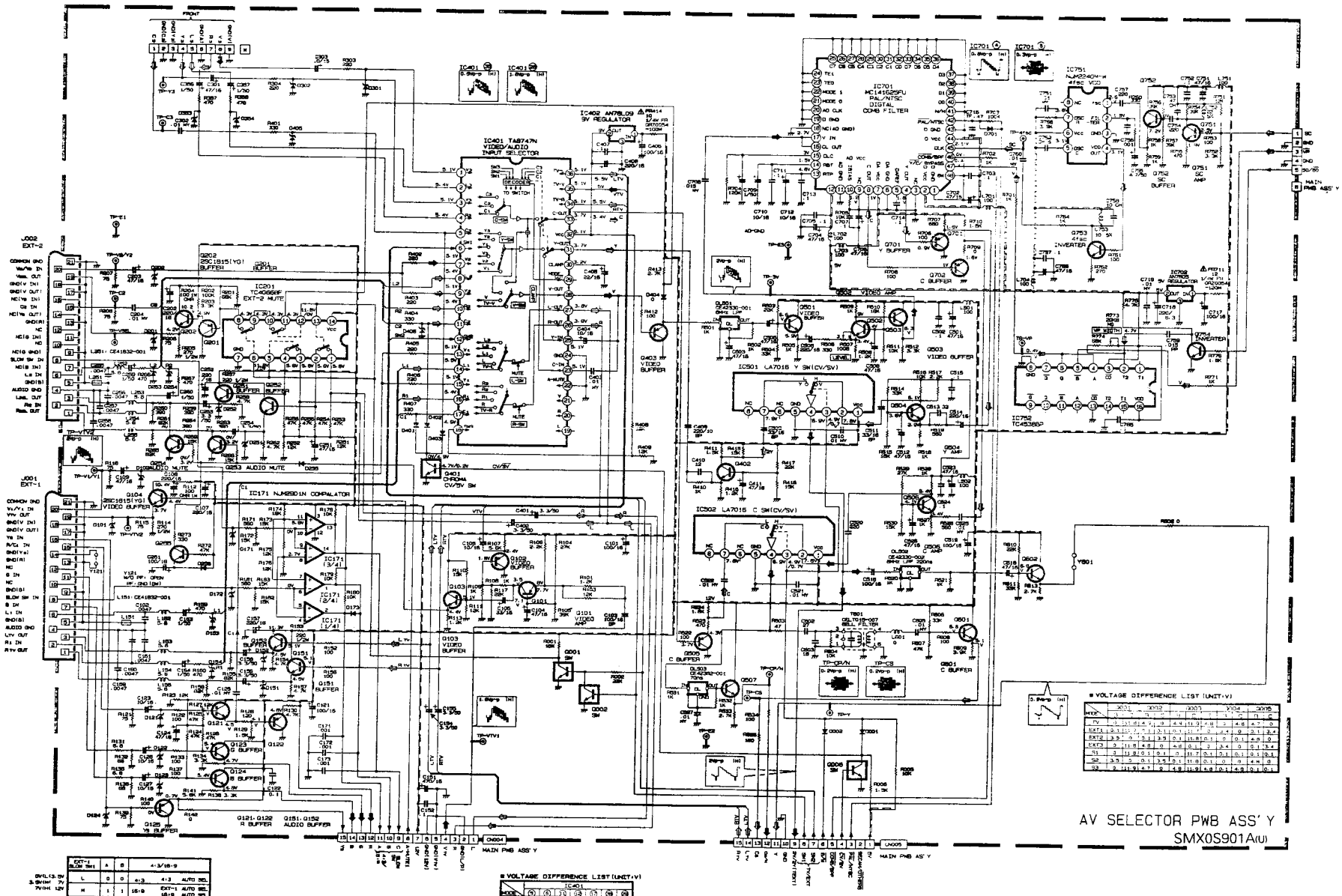


ITEM	PIF	SIF	Adj.P trap①	Adj.P trap②	Adj.S trap	2nd SIF
f(MHz)	39.5	33.5	31.0	32.0	41.5	6.0

(No.50789) 3-9 A A 3-10 (No.50789)

AV SELECTOR PWB CIRCUIT DIAGRAM

Refer to the following PWB pattern. : AV SELECTOR PWB PATTERN 3-33page.



(No.50789) 3-11 B B 3-12 (No.50789)

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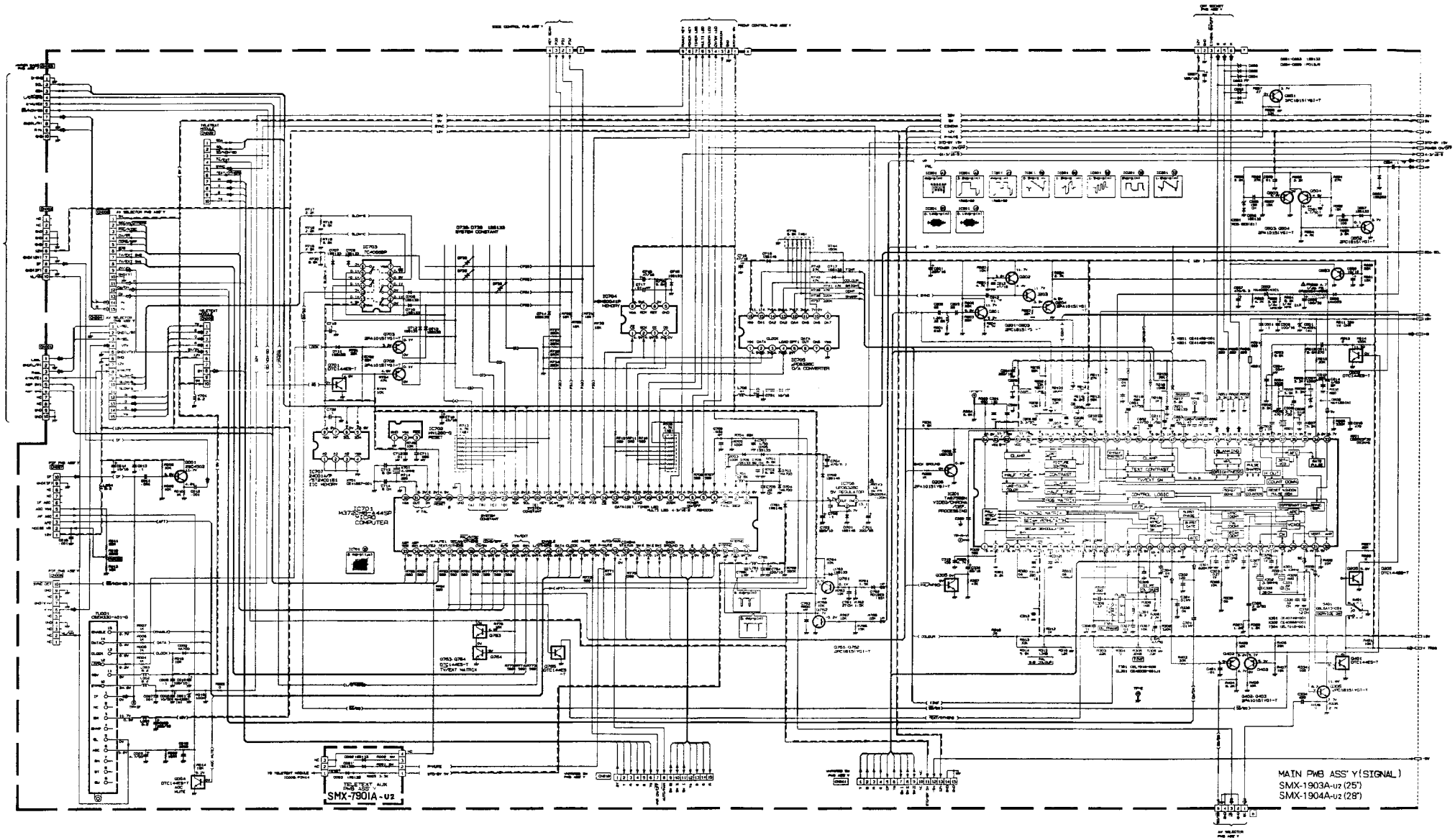
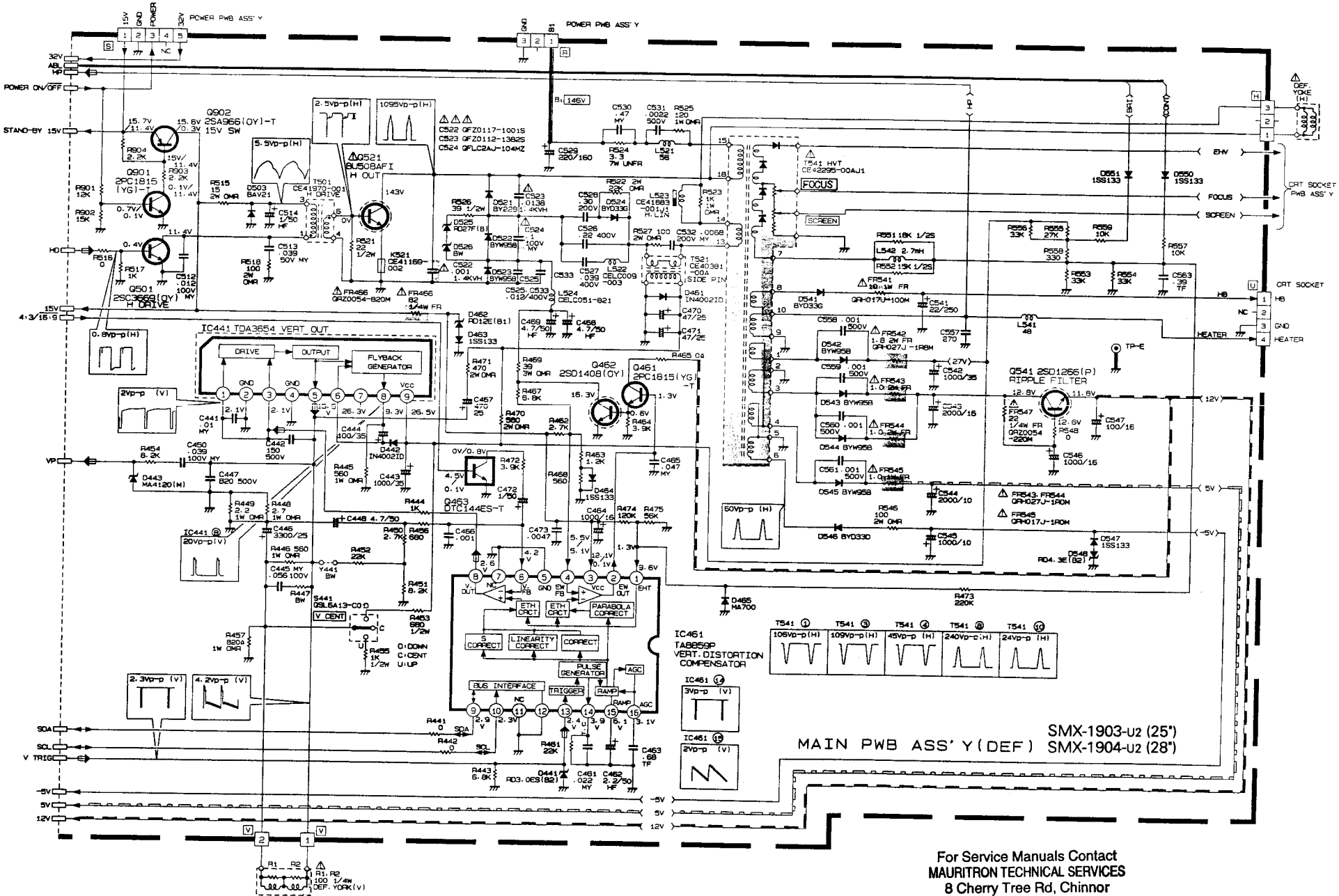
MAIN PWB,TELETEXT AUX PWB CIRCUIT DIAGRAMS

Refer to the following PWB pattern. : MAIN PWB PATTERN 3-35page,TELETEXT AUX PWB PATTERN 3-48 page.



MAIN PWB CIRCUIT DIAGRAM

Refer to the following PWB pattern. : MAIN PWB PATTERN 3-35page.



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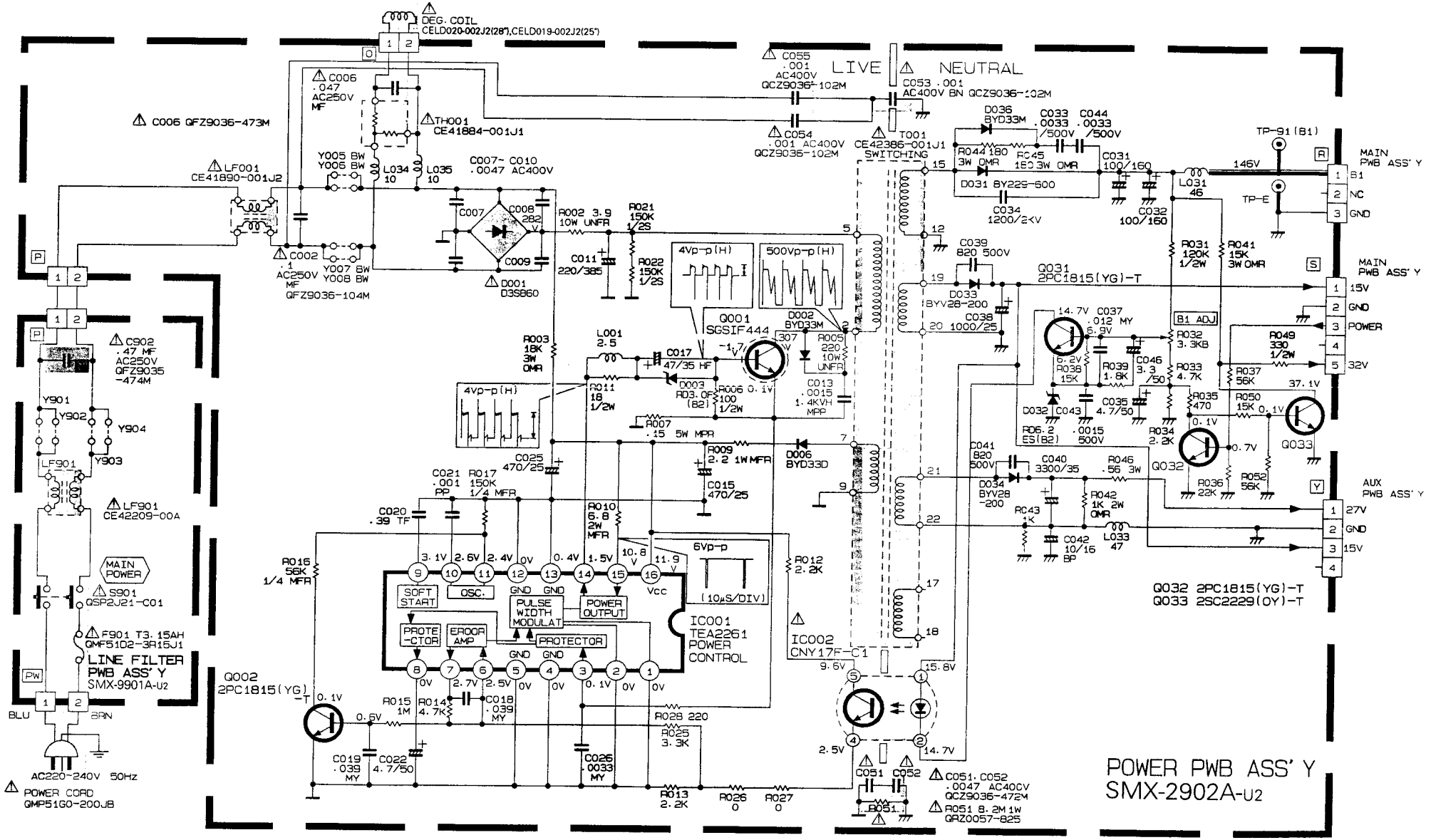
POWER PWB, LINE FILTER PWB CIRCUIT DIAGRAMS

Refer to the following PWB pattern. : POWER PWB PATTERN 3-37page, LINE FILTER PWB PATTERN 3-39page



VNR & RGB SW PWB CIRCUIT DIAGRAM

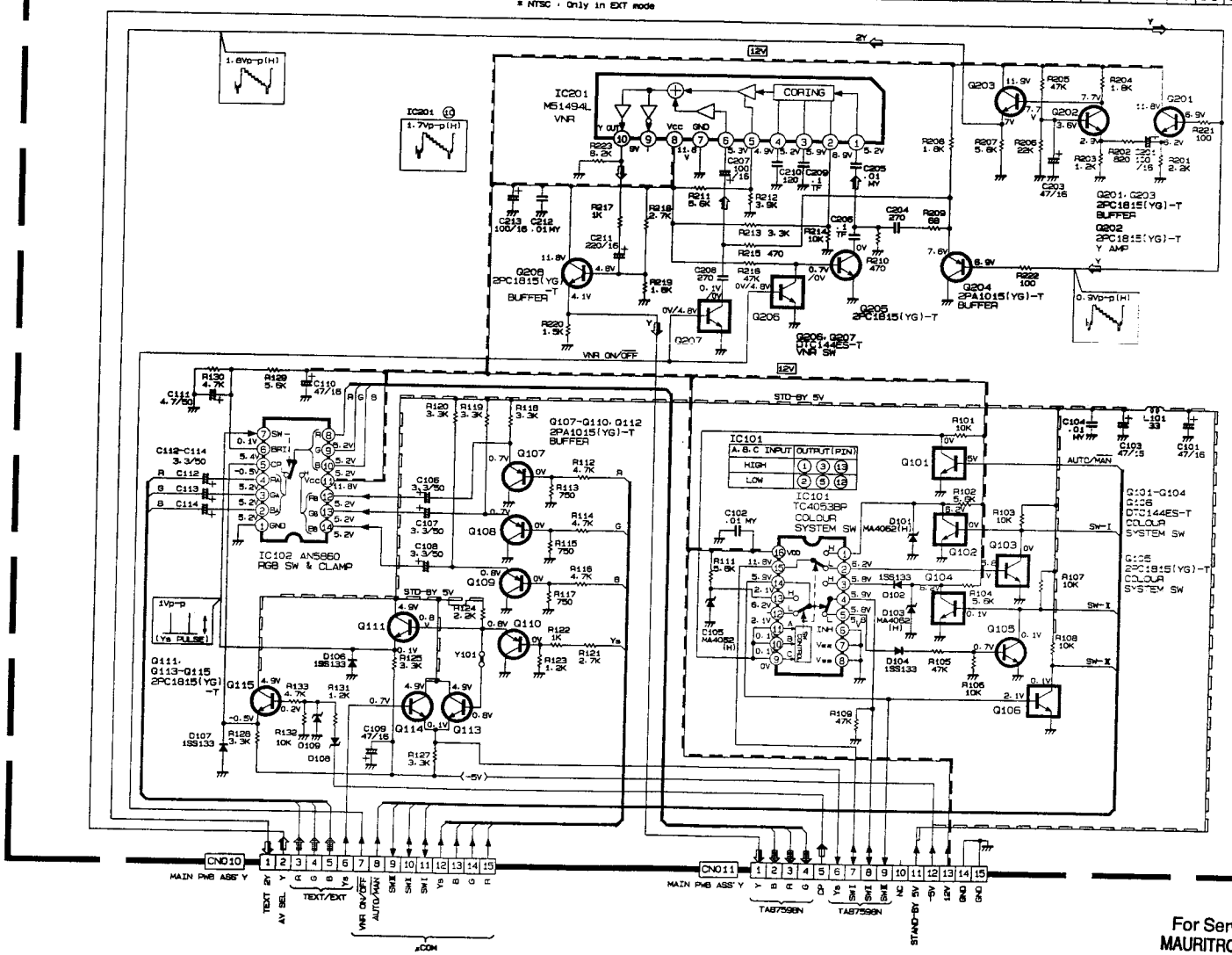
Refer to the following PWB pattern. : VNR & RGB SW PWB PATTERN 3-40page.

VNR&RGB PWB ASS' Y
SMX0N901A-U2

■VOLTAGE DIFFRENCE LIST(UNIT:V)
COLOUR SYSTEM SWITCH

MODE	RECEIVE	Q101		Q102		Q103		Q104		Q105		Q106		IC101													
		IN	OUT	IN	OUT	IN	OUT	IN	OUT	B	C	IN	OUT	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮
AUTO	PAL	4.9	0	0	6.2	5.9	0	0.1	6.2	0.7	0.1	2.1	0.1	6.2	5.9	5.9	5.9	5.9	0	0	0	2.1	6.2	2.1	5.9			
	SECAM	4.9	0	0	6.2	5.9	0	4.1	0.1	0.4	4.1	2.1	0.1	6.2	5.9	0.3	2.3	2.3	0	0	0	2.1	6.2	2.1	5.9			
	NTSC	0	11.8	5	0.1	0	5	5	0.1	0	5	6.1	0	0.1	0	0.1	0.1	-0.3	11.9	12	11.9	0	6.1	6.1	0			
PAL	PAL	0	11.8	01	6.2	0	0.1	0.1	6.1	0	0.1	5.1	0	6.2	0	5.6	5.6	-0.2	11.9	11.9	11.9	0.1	6.2	6.1	6.2			
SECAM	SECAM	0	11.9	0.1	6.2	0	0.1	5	6.1	0	5	6.1	0	6.2	0	2.3	2.3	-0.2	11.9	11.9	11.9	0.1	6.2	6.1	6.2			

* NTSC : Only in EXT mode



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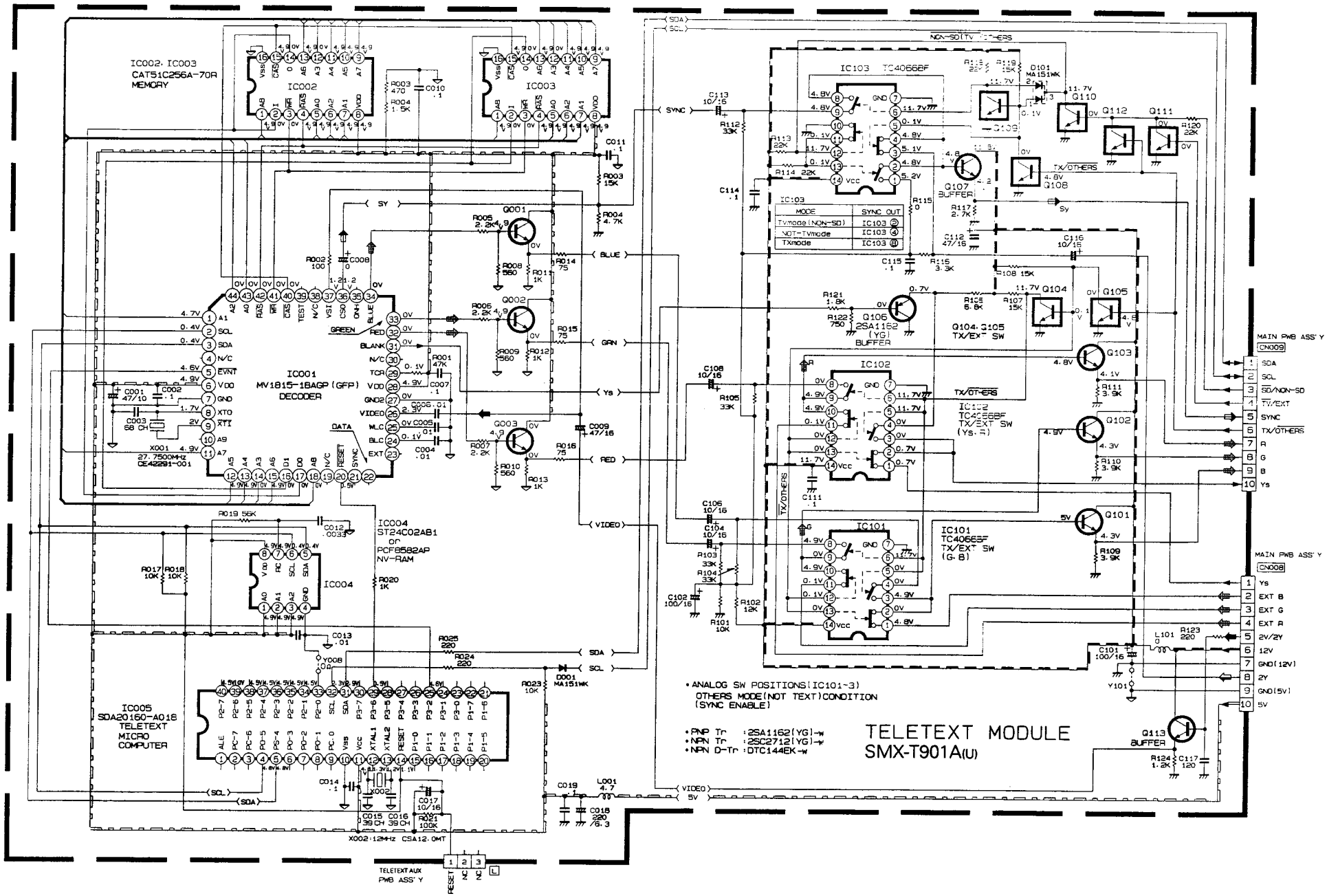
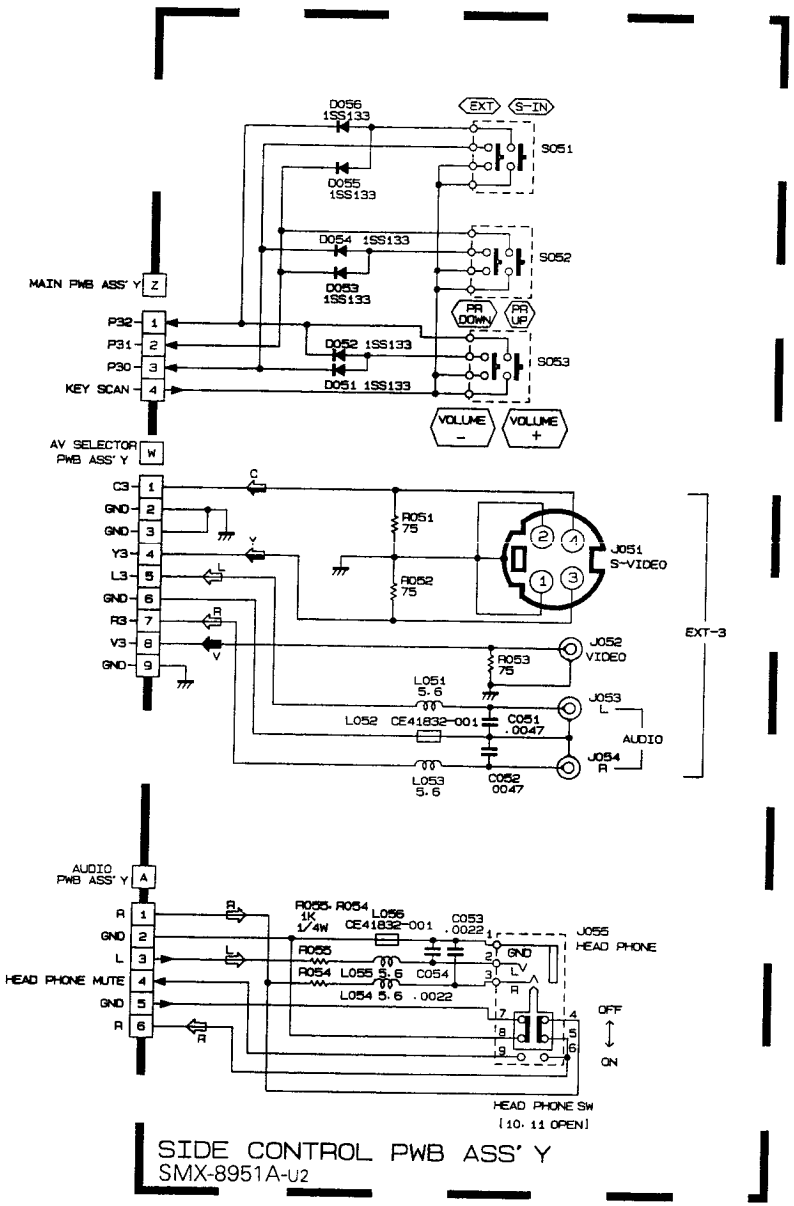
TELETEXT MODULE CIRCUIT DIAGRAM

Refer to the following PWB pattern. : TELETEXT MODULE PATTERN 3-41page.



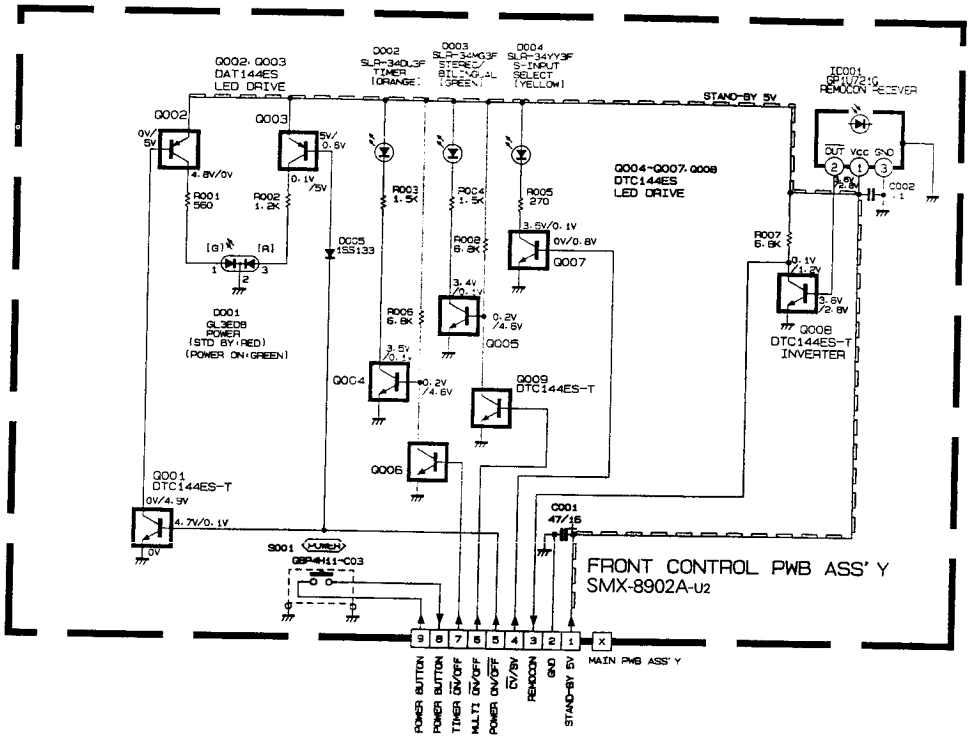
SIDE CONTROL PWB CIRCUIT DIAGRAM

Refer to the following PWB pattern. : SIDE PWB PATTERN 3-43page.



FRONT CONTROL PWB CIRCUIT DIAGRAM

Refer to the following PWB pattern. : FRONT CONTROL PWB PATTERN 3-44page.



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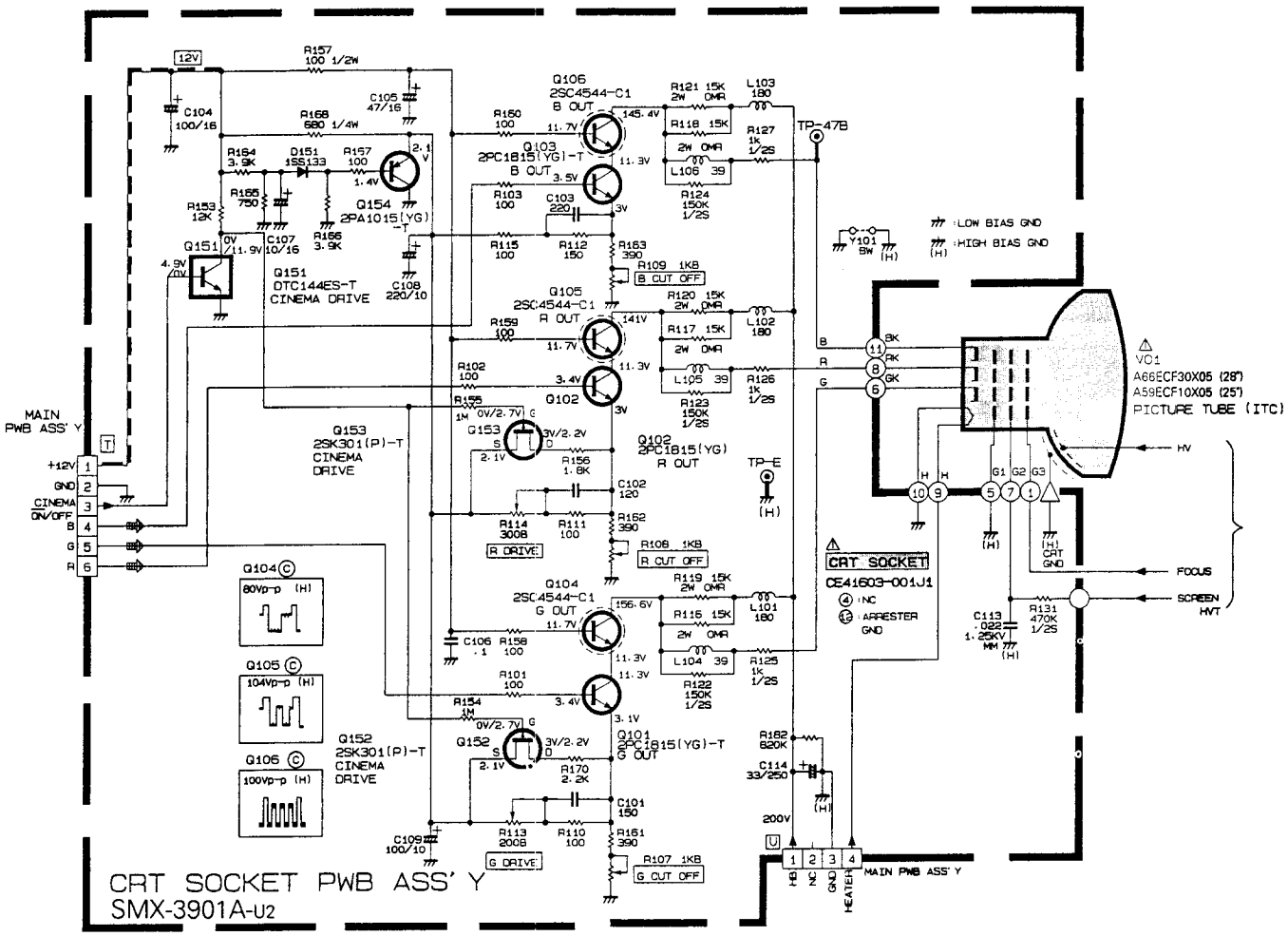
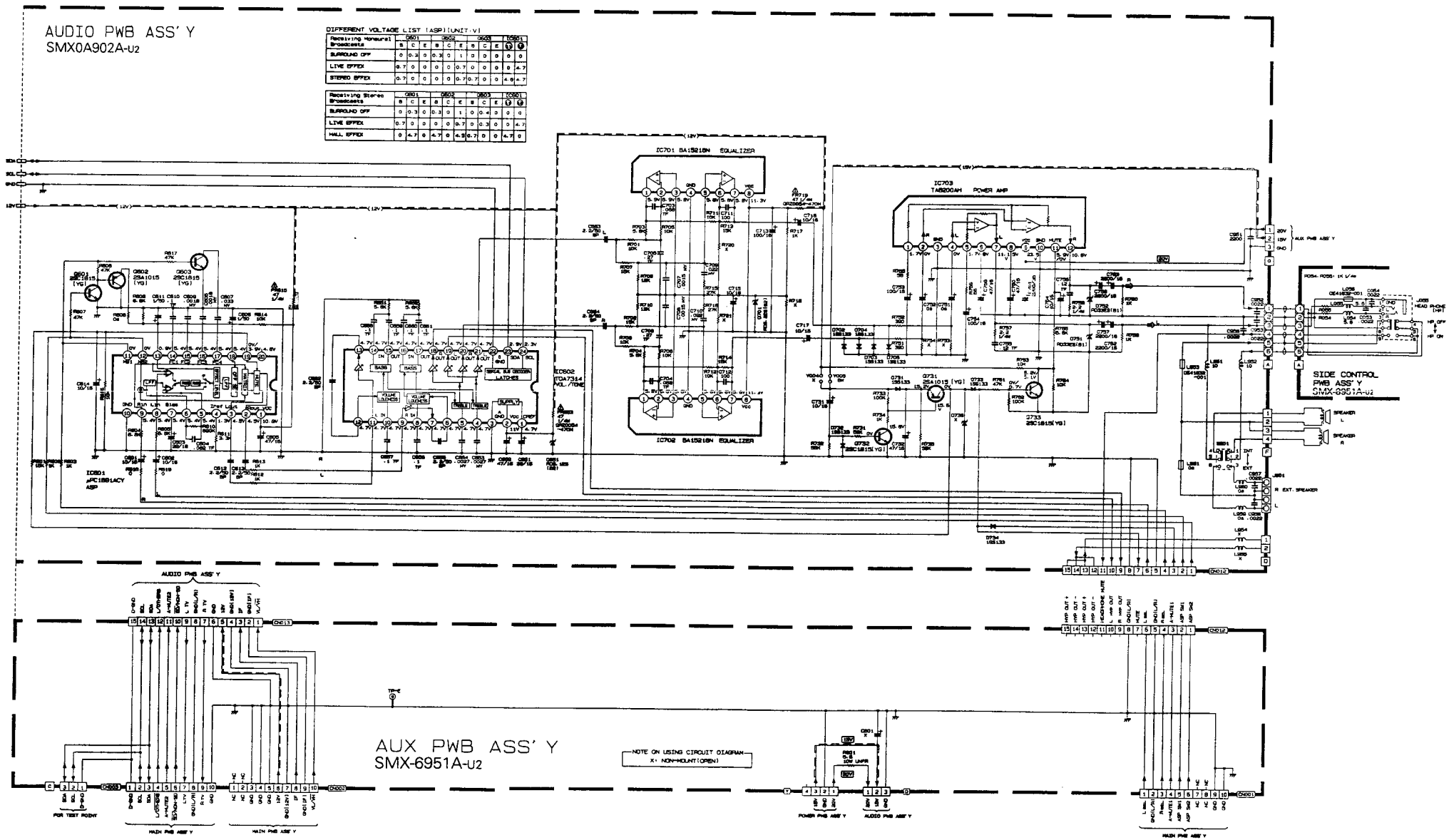
CRT SOCKET PWB CIRCUIT DIAGRAM

Refer to the following PWB pattern. : CRT SOCKET PWB PATTERN 3-45page.



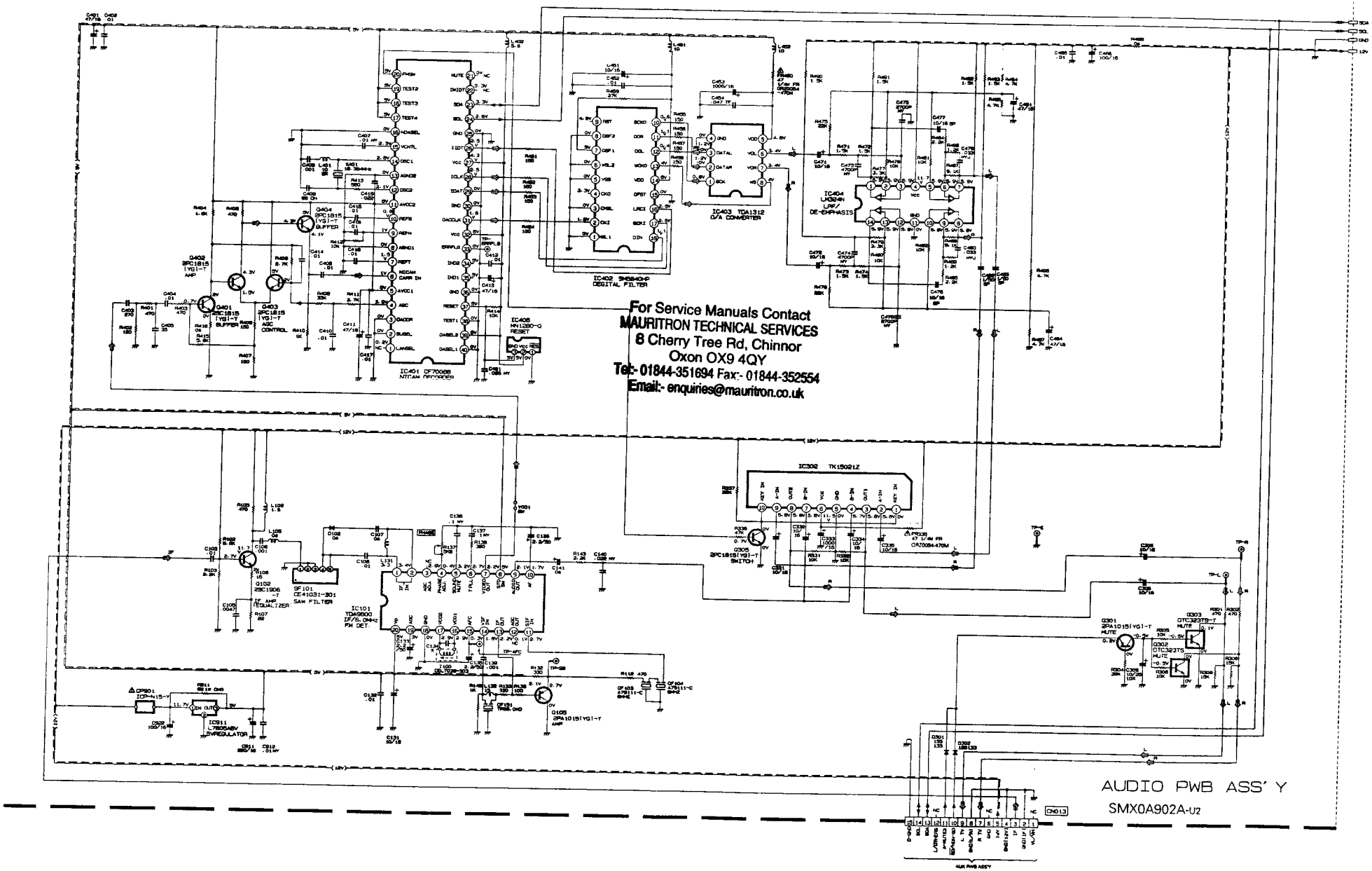
AUDIO PWB, AUX PWB CIRCUIT DIAGRAMS

Refer to the following PWB pattern. : AUDIO PWB PATTERN 3-47page, AUX PWB PATTERN 3-46page.



IO PWB CIRCUIT DIAGRAM

Refer to the following PWB pattern. : AUDIO PWB PATTERN 3-47page



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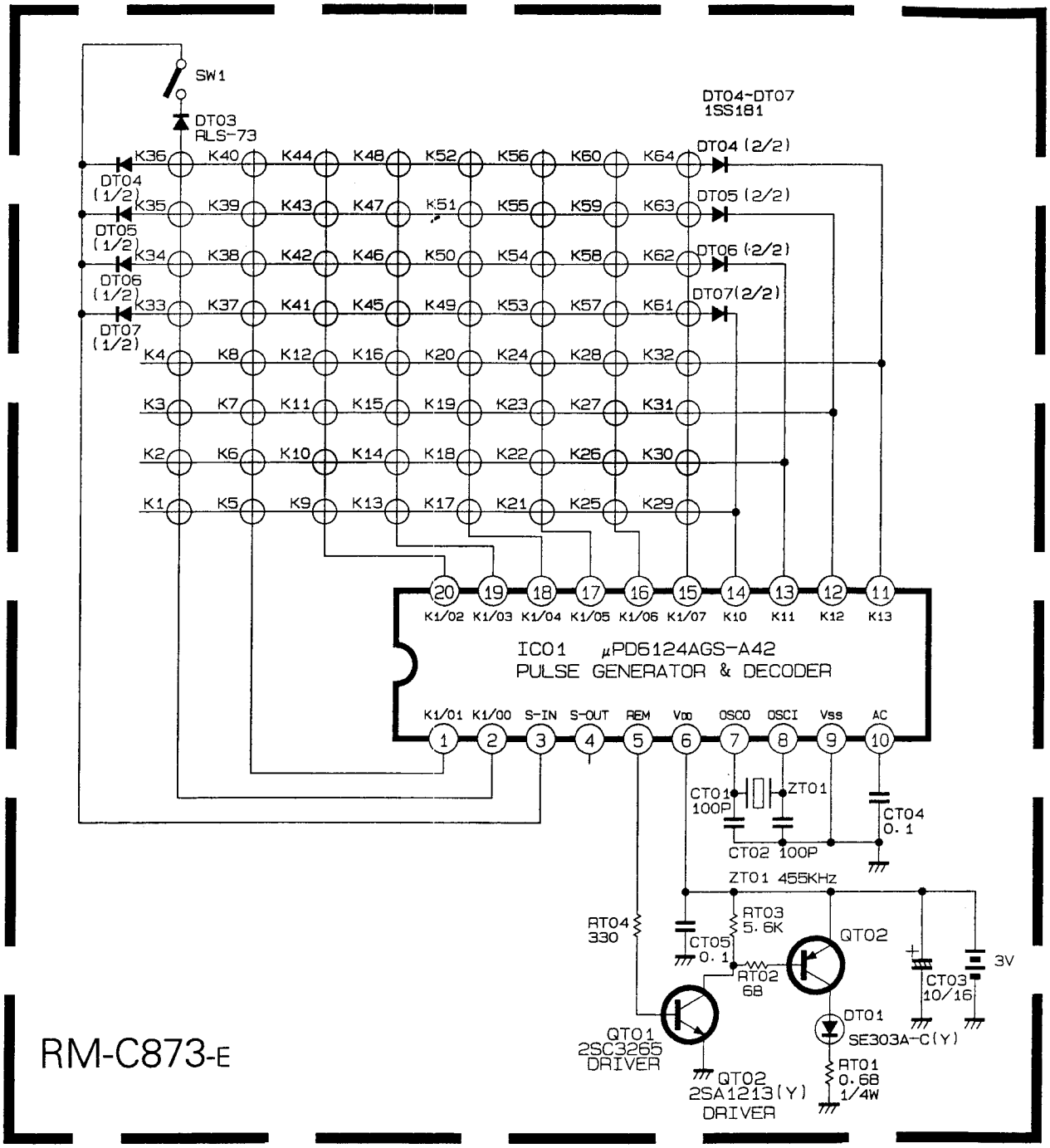
REMOTE CONTROL TRANSMITTER CIRCUIT DIAGRAM



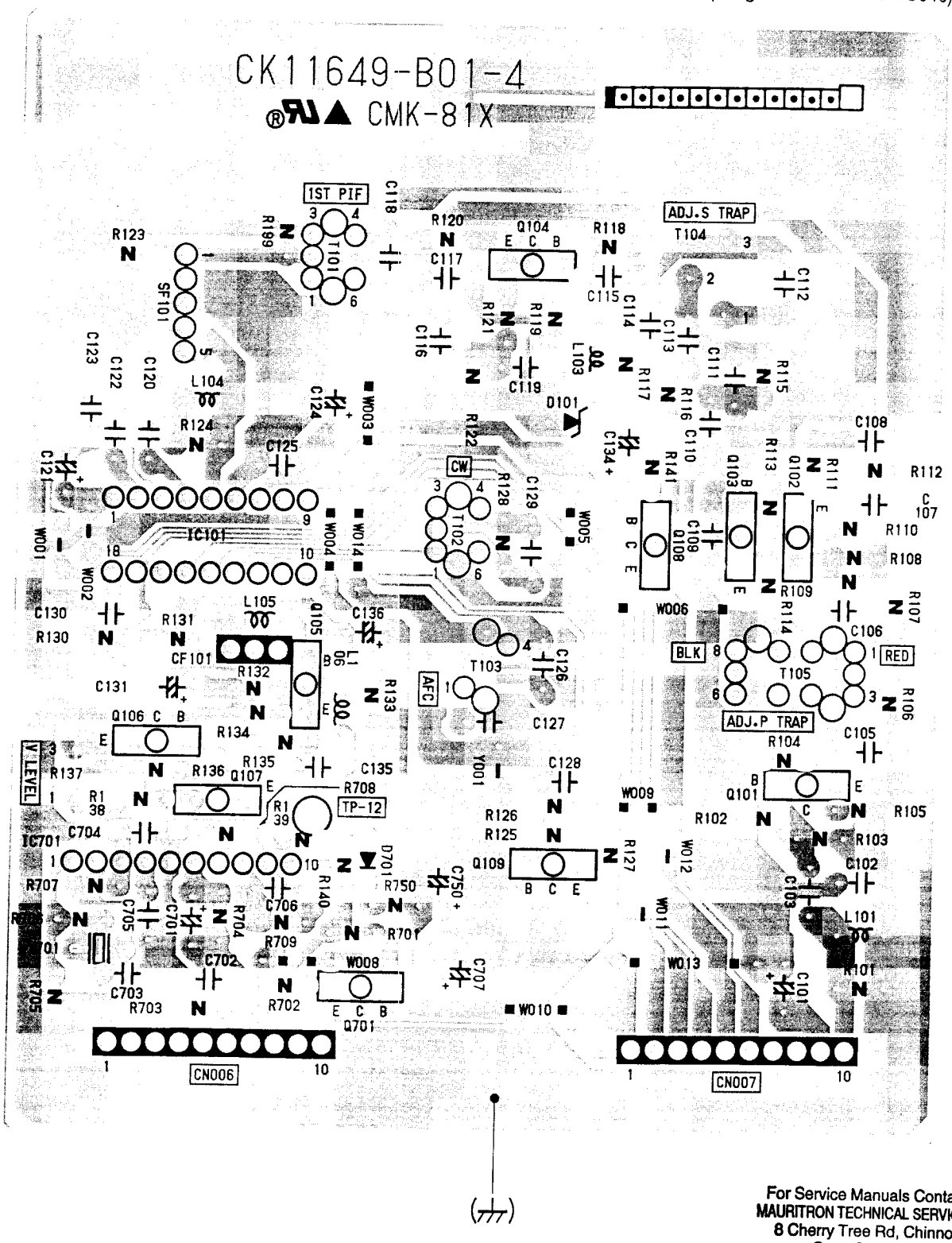
RM-C873-E

K. NO	FUNCTION	K. NO	FUNCTION	K. NO	FUNCTION	K. NO	FUNCTION
K 1	DISP. CANCEL	K 17	MUTE	K 33	———	K 49	6
K 2	SUB PAGE	K 18	VOLUME −	K 34	———	K 50	CH RETURN
K 3	MODE	K 19	VOLUME +	K 35	———	K 51	7
K 4	STORE	K 20	MENU UP	K 36	———	K 52	8
K 5	SIZE	K 21	MENU −	K 37	HYPER BASS	K 53	9
K 6	HOLD	K 22	MENU +	K 38	S_IN	K 54	PR/CH/CG
K 7	REVEAL	K 23	MENU DOWN	K 39	P/S/N	K 55	0
K 8	RED	K 24	MENU OK	K 40	TV POWER	K 56	− / − −
K 9	GREEN	K 25	REC ●	K 41	SLEEP TIMER	K 57	———
K 10	CYAN	K 26	INDEX	K 42	CH PAGE −	K 58	———
K 11	TV	K 27	TV/TXT/MIX	K 43	CH PAGE +	K 59	———
K 12	EXT	K 28	———	K 44	1	K 60	———
K 13	POWER	K 29	YELLOW	K 45	2	K 61	———
K 14	EXIT	K 30	DISPLAY	K 46	3	K 62	———
K 15	———	K 31	———	K 47	4	K 63	———
K 16	———	K 32	———	K 48	5	K 64	———

PIF PWB PATTERN (SMX0F901A-U2)

UPPER

(Magnification Rate 160%)



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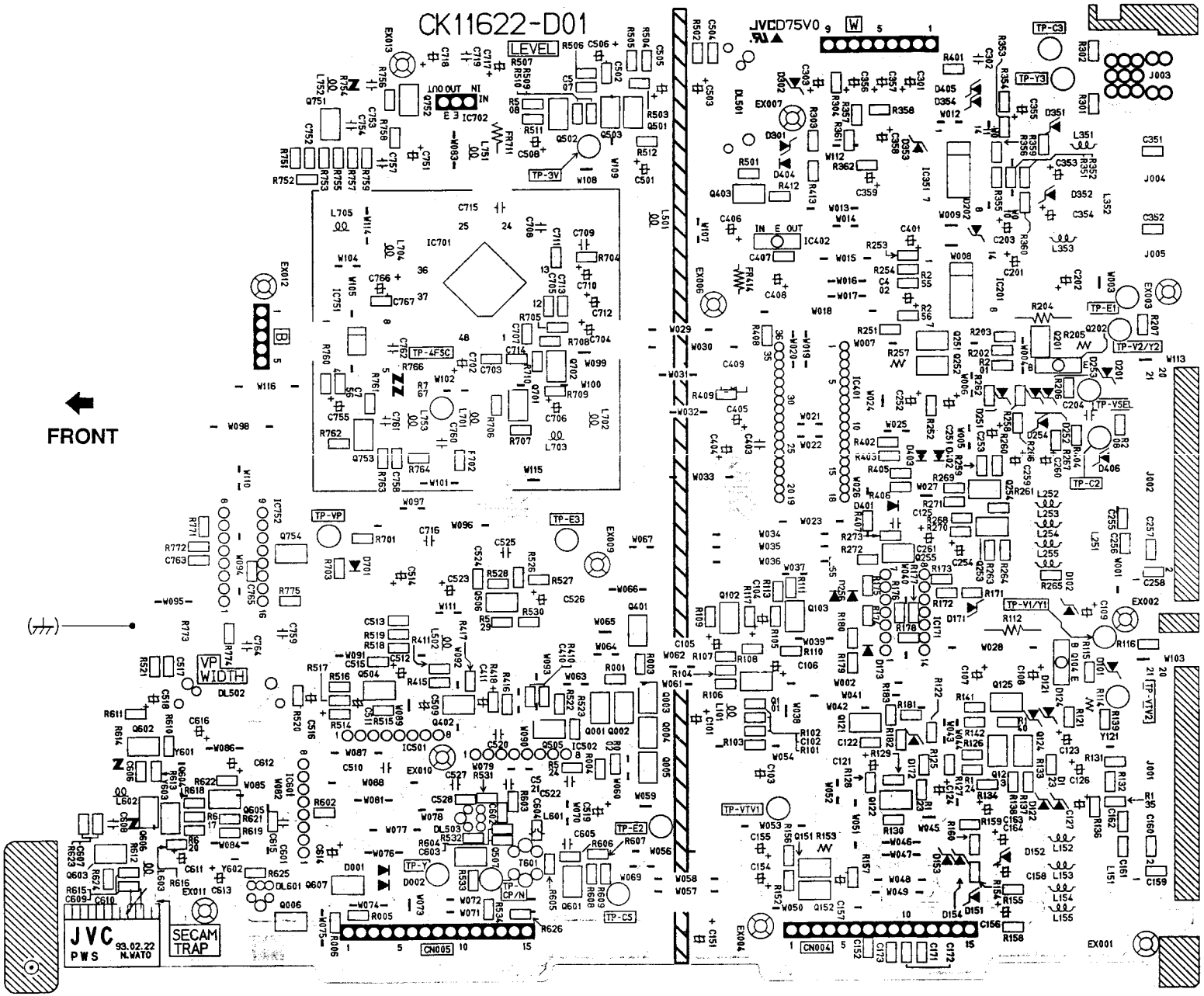
AV SELECTOR PWB PATTERN (SMX0S901A(U))

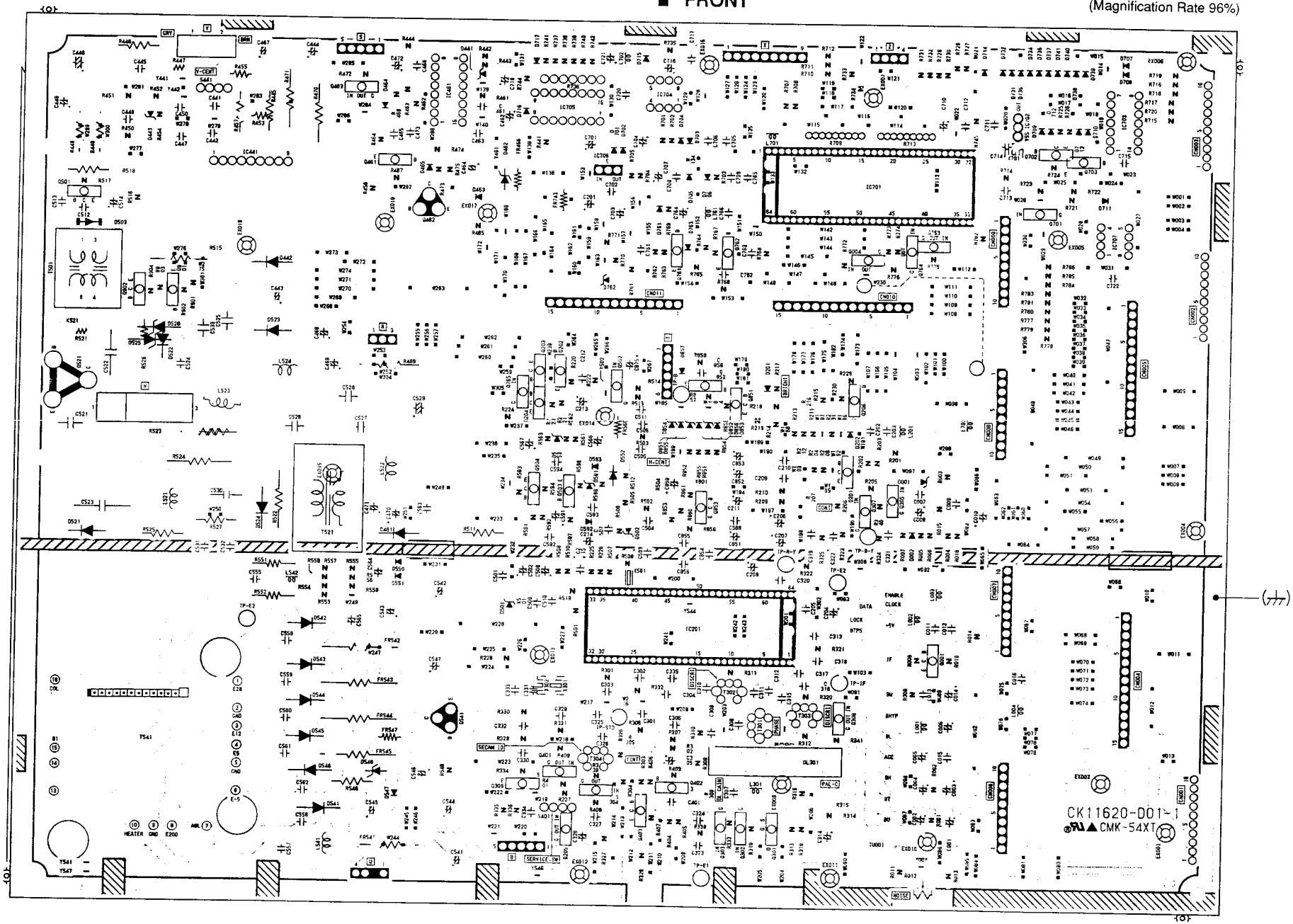
(Magnification Rate 122%)



MAIN PWB PATTERN (SMX-1903A-U2)[AV-25S1EK] / (SMX-1904A-U2)[AV-28S1EK]

FRONT

(Magnification Rate 96%)



(No.50789) 3-35 C C 3-36 (No.50789)

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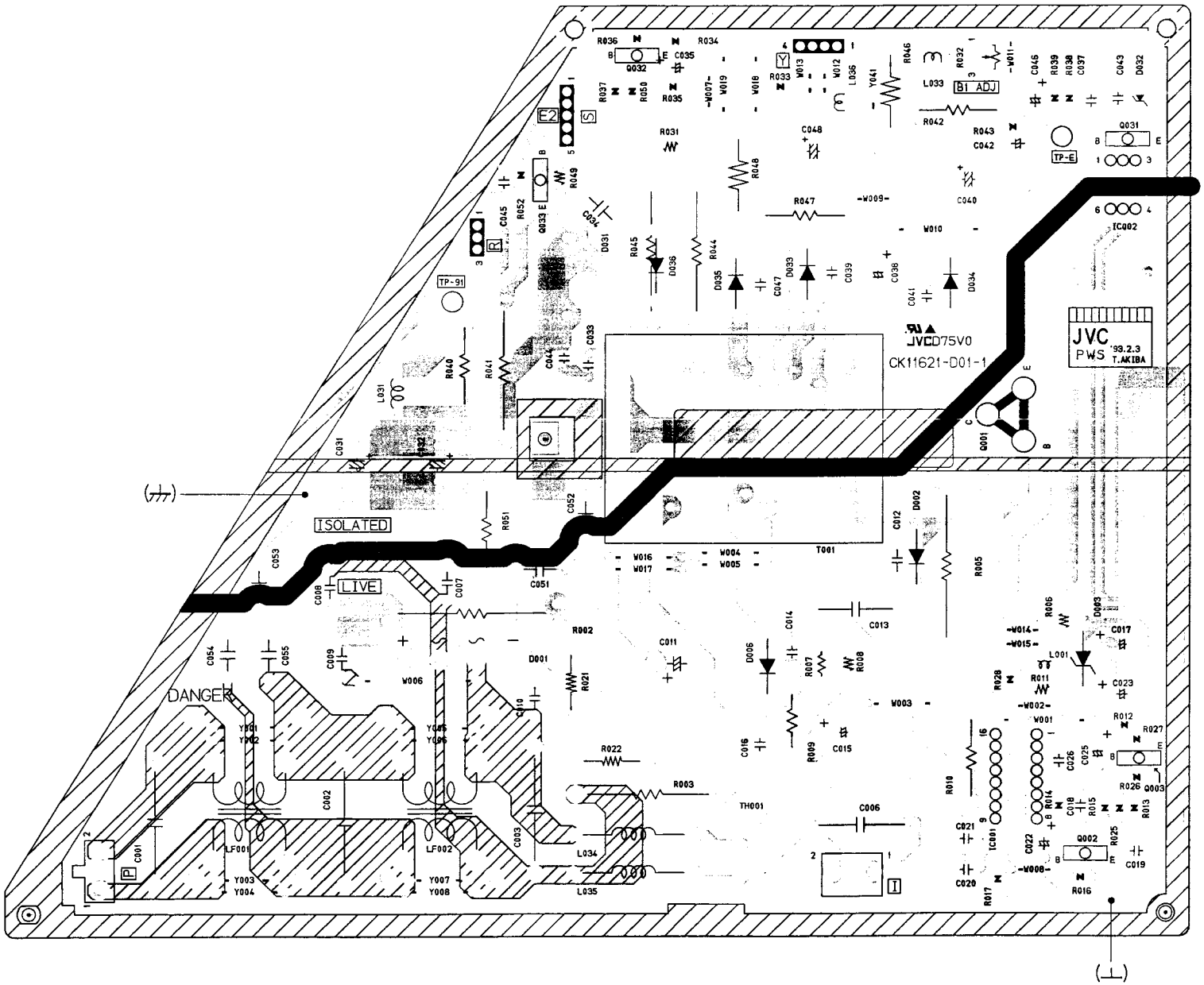
POWER PWB PATTERN (SMX-2902A-U2)

UPPER

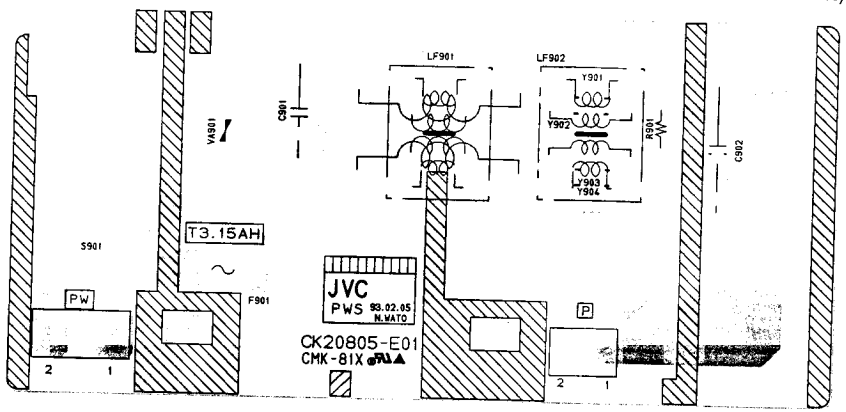
(Magnification Rate 113%)



E FILTER PWB PATTERN (SMX-9901A-U2)

FRONT

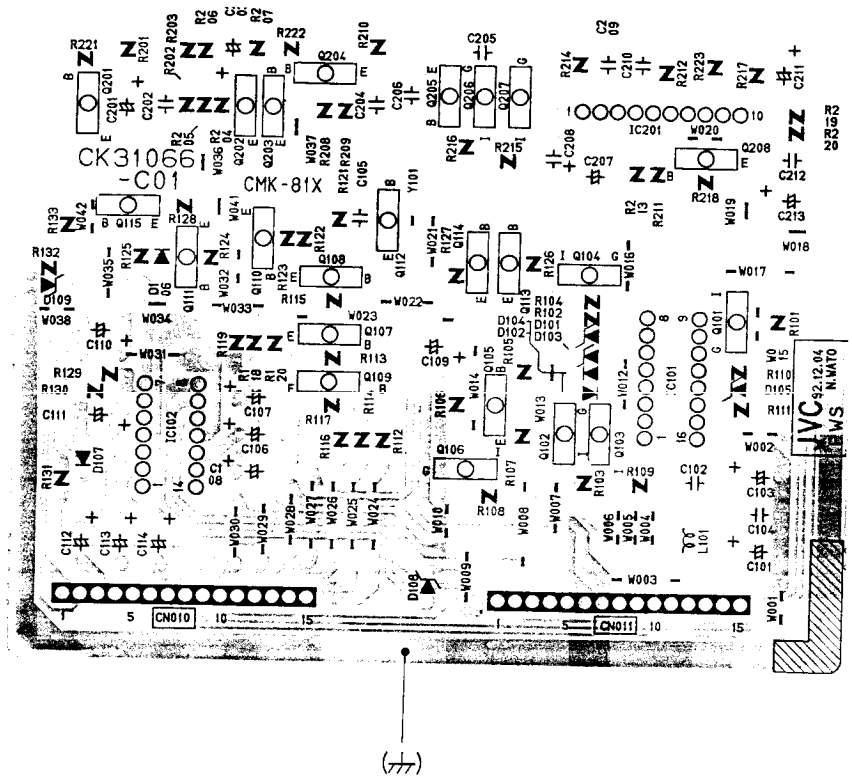
(Magnification Rate 100%)



VNR & RGB SW PWB PATTERN (SMX0N901A-U2)

UPPER

(Magnification Rate 128%)

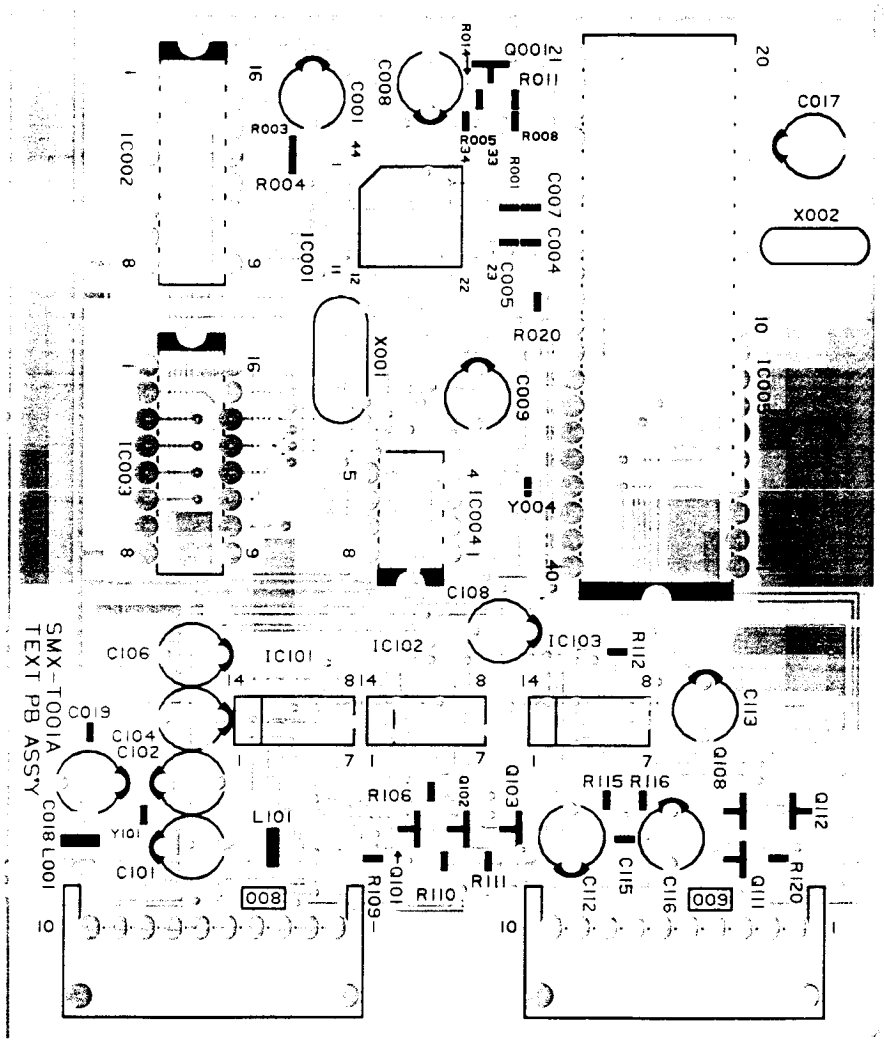


For Service Manuals Contact
MAURITRON TECHNICAL SERVICES
8 Cherry Tree Rd, Chinnor
Oxon OX9 4QY
Tel:- 01844-351694 Fax:- 01844-352554
Email:- enquiries@mauritron.co.uk

TELETEXT MODULE PATTERN (SMX-T901A-E)

UPPER

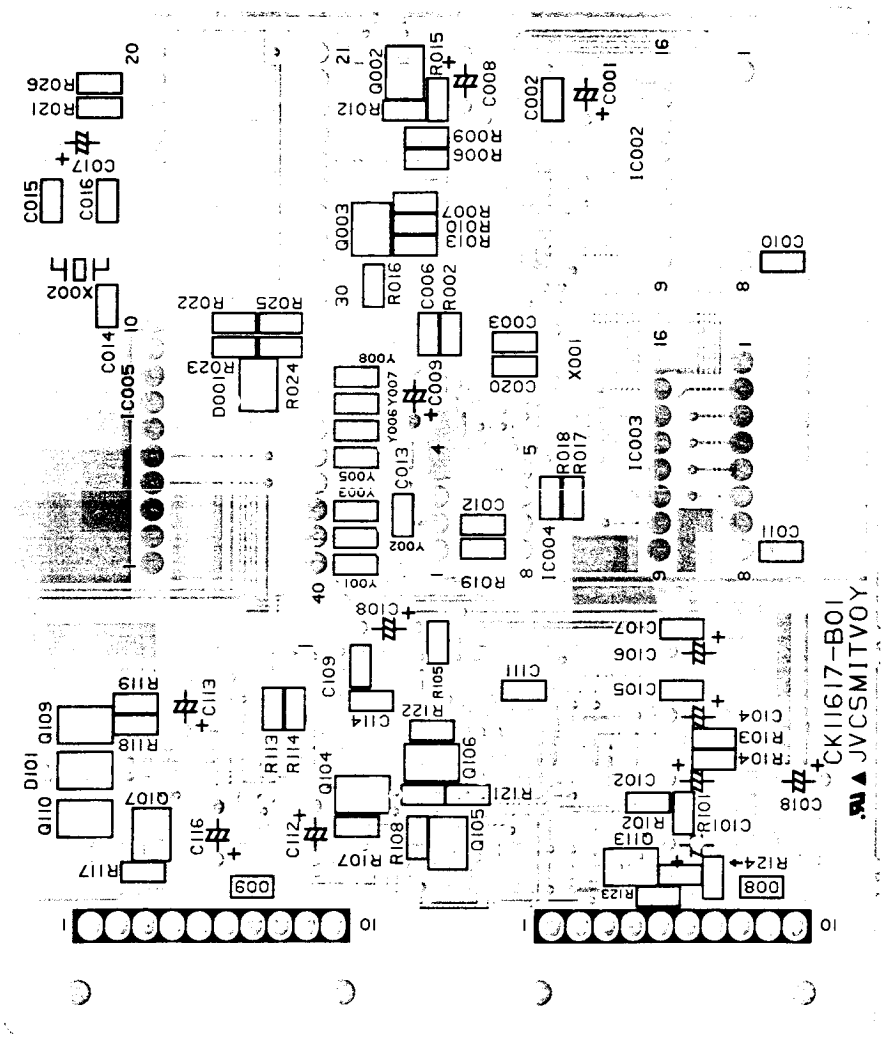
(Magnification Rate 200%)



TELETEXT MODULE PATTERN (SMX-T901A-E)

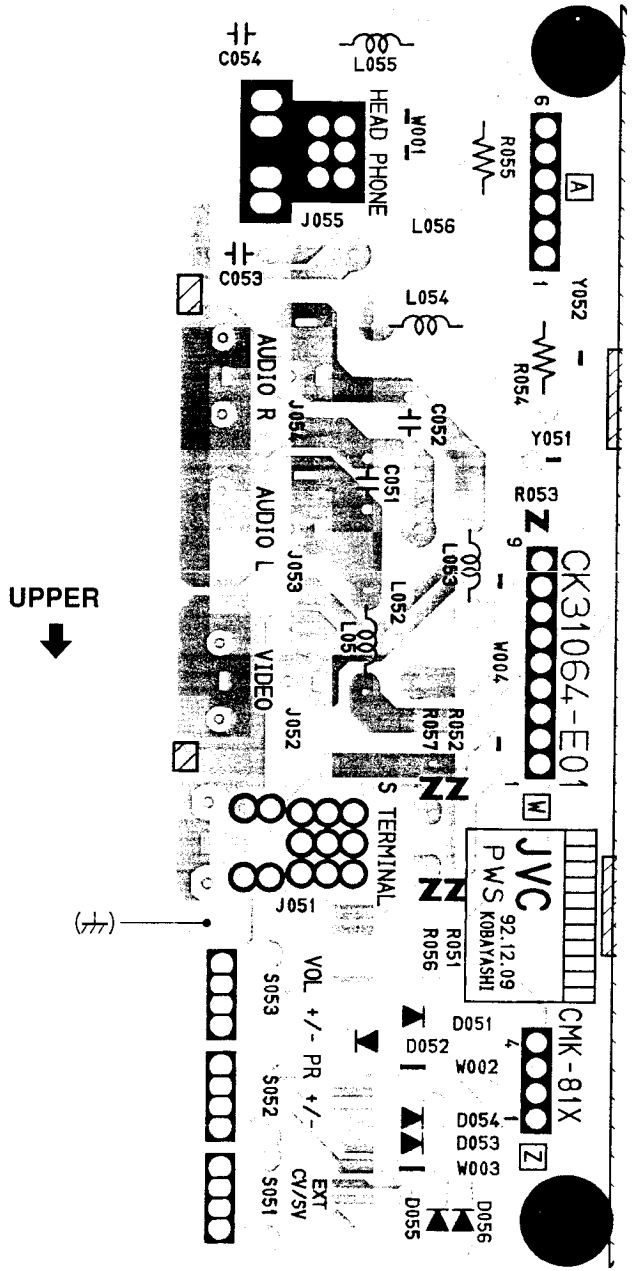
UPPER

(Magnification Rate 200%)



SIDE CONTROL PWB PATTERN (SMX-8951A-U2)

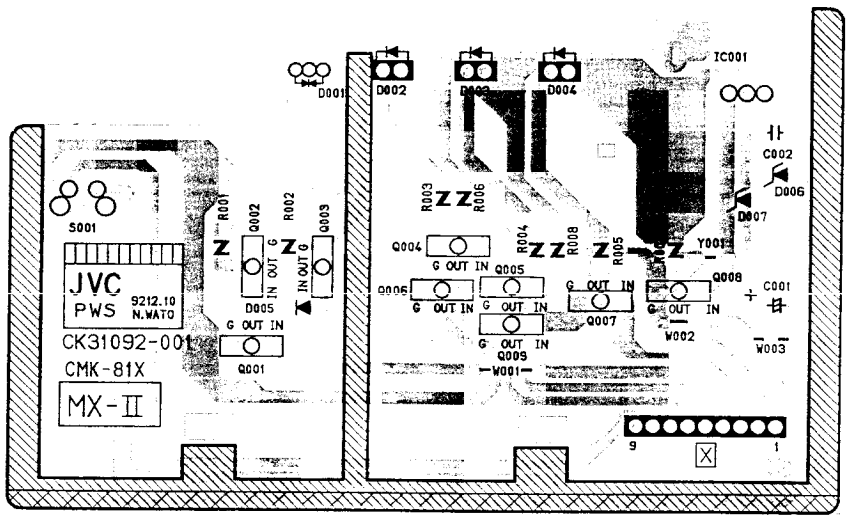
(Magnification Rate 192%)



FRONT CONTROL PWB PATTERN (SMX-8902A-U2)

FRONT

(Magnification Rate 128%)



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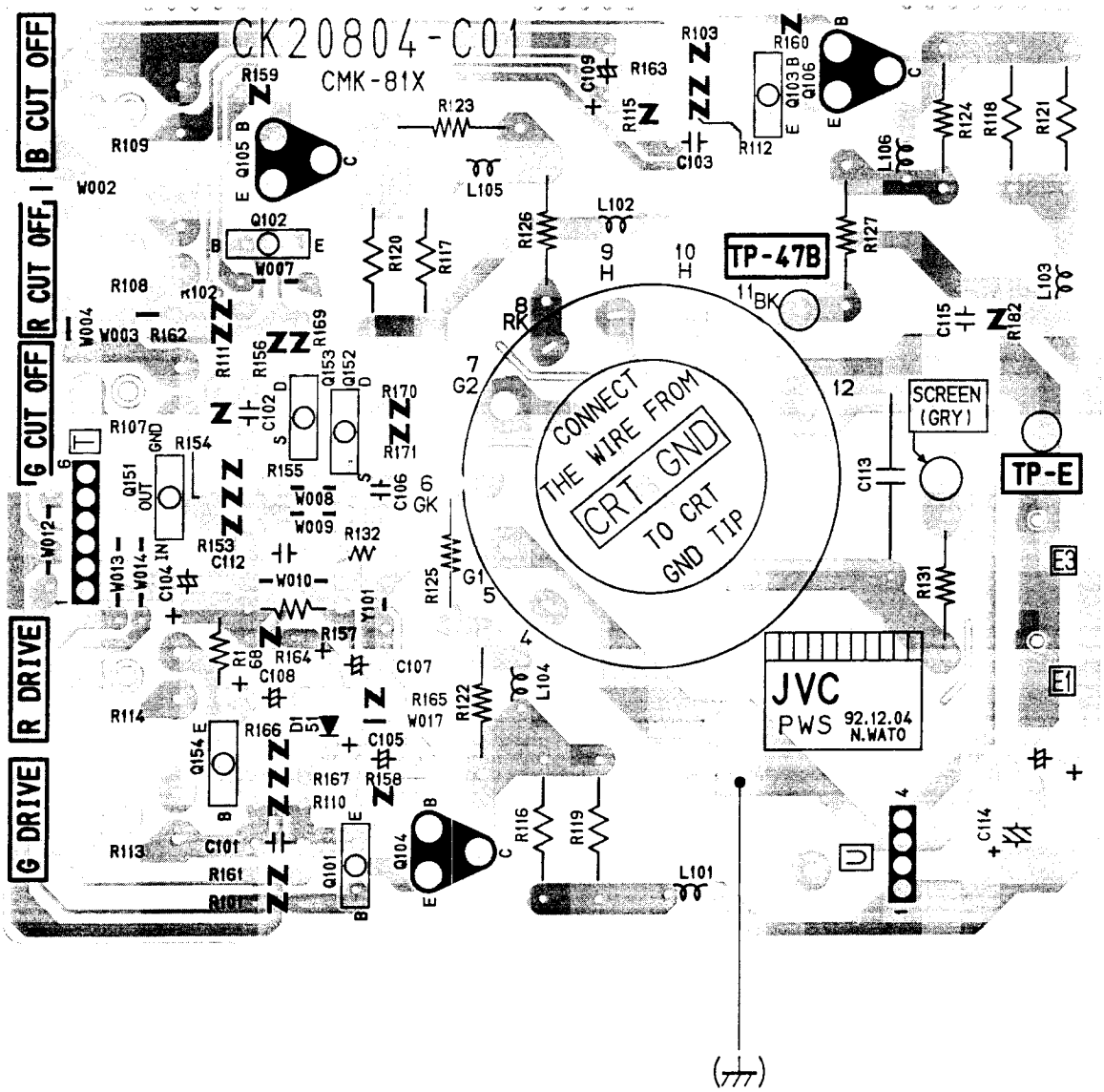
CRT SOCKET PWB PATTERN (SMX-3901A-U2)

UPPER

(Magnification Rate 128%)



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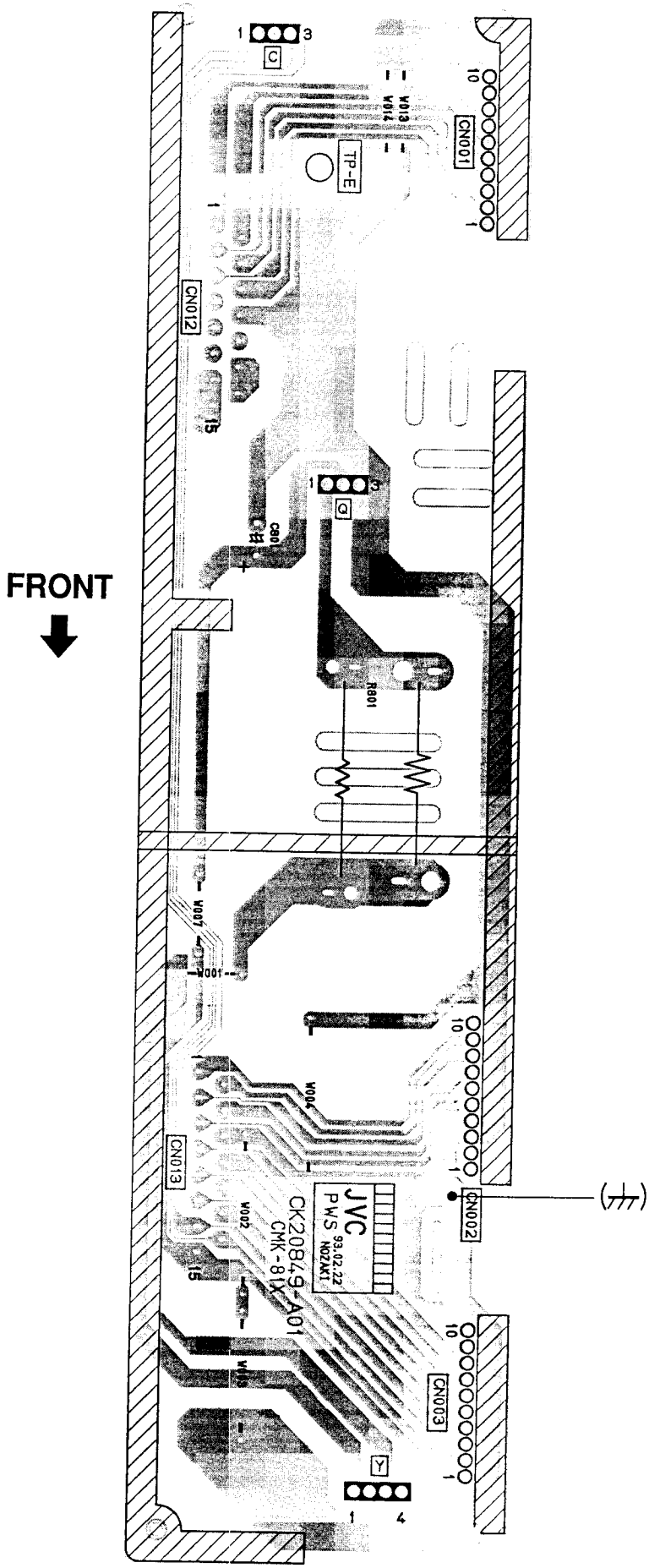
AUX PWB PATTERN (SMX-6951A-U2)

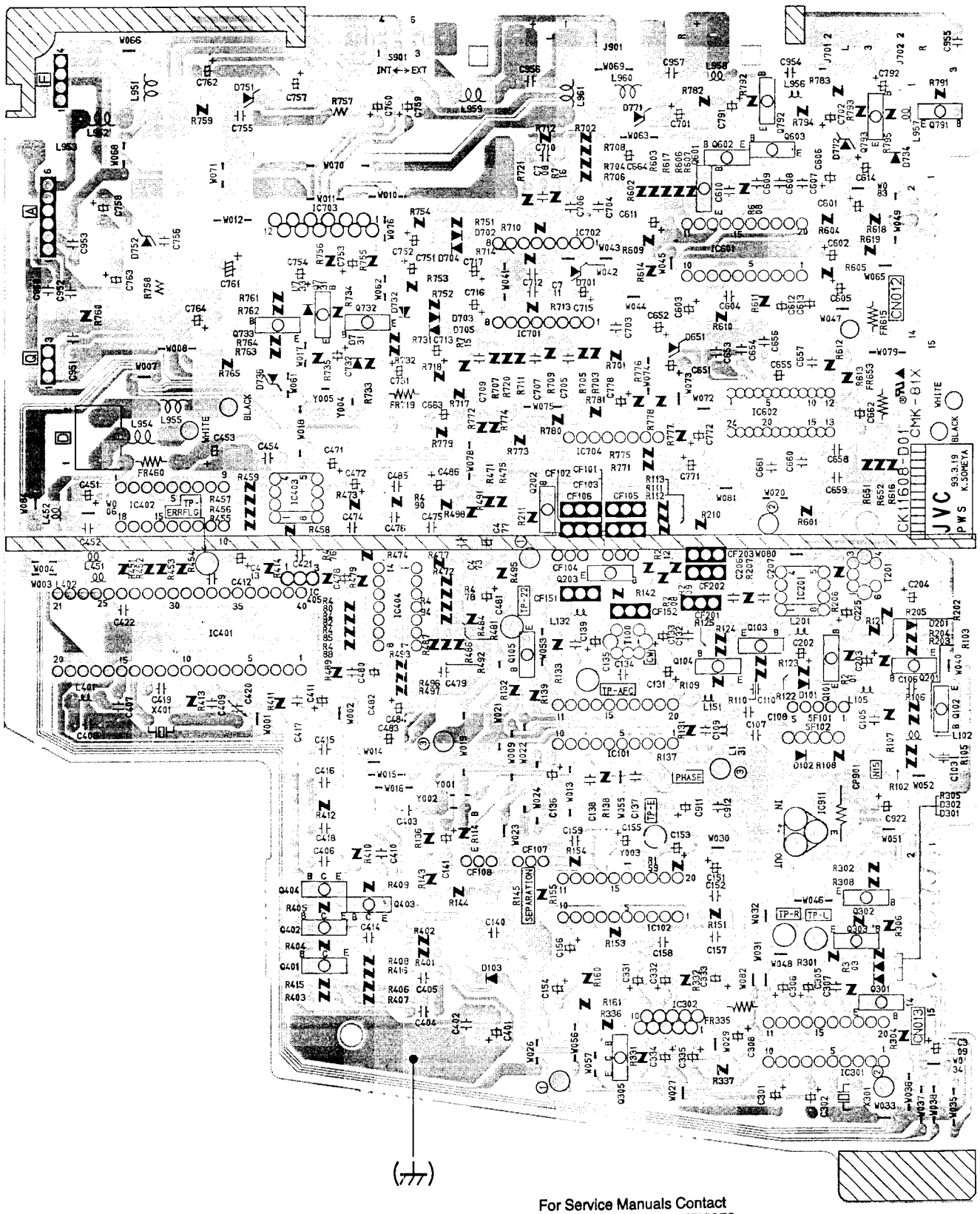
(Magnification Rate 100%)



AUDIO PWB PATTERN (SMX0A902A-U2)

UPPER

(Magnification Rate 90%)



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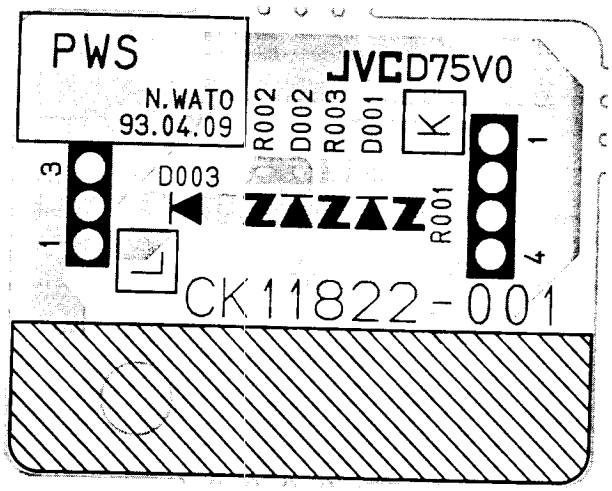
K

TELETEXT AUX PWB PATTERN (SMX-7901A-U2)

(Magnification Rate 200%)



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